THE LANCET

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

Telegrams—LANCET, WESTRAND LONDON. *Telephone*—GERRARD 4314 & 4315. *Offices*—423, Strand, London, W.C.

No. III. OF VOL. II., 1928.
No. 5473. Vol. CCXV.

LONDON, SATURDAY, JULY 21, 1928

Founded 1823. Registered as a Newspaper. Published Weekly.

Pp. 120—Price 1s.
Annual Subscription
Inland £2 2s. Abroad £2 10s.

IN THE PRESS
The FOURTH (1928) VOLUME of
MODERN TECHNIQUE IN TREATMENT.
Important Announcement.
See pages 4, 5 & 6.
London: THE LANCET, Ltd., 1, Bedford Street, W.C.2.
Sole Agents for India: Butterworth and Co.

OXFORD MEDICAL PUBLICATIONS.
SEE PAGE 2.

NOW READY. SECOND EDITION. REVISED AND ENLARGED.
URINARY SURGERY — NEW EDITION.
A Handbook for the General Practitioner
By W. K. IRWIN, M.D., F.R.C.S.,
Assistant Surgeon, St. Paul's Hospital for Genito-Urinary Diseases.
"Clearly written . . . furnishes the practitioner with information of great practical value in his everyday work."—BRIT. MED. JOUR.
"Should be in the possession of every medical man."
—GLASGOW MEDICAL JOURNAL.
Crown 8vo. Pp. viii. + 271. Price 10s. 6d. Postage 6d.
Baillière, Tindall & Cox, 7 & 8, Henrietta-street, London. W.C.2.

ON THE BREAST.
By DUNCAN C. L. FITZWILLIAMS,
C.M.G., M.D., Ch.M., F.R.C.S. Ed. and Eng.
Royal 8vo. 456 pp. 2 Plates, 166 Illustrations. 30s. net.
LANCET.—"The book is packed with accurate clinical observations and bears evidence throughout of extensive clinical experience and wide reading on the part of the author."
Wm. Heinemann (Medical Books) Ltd., 99, Great Russell Street, London, W.C.1.

RADIUM IN CANCER,
AND
THE SURGERY OF ACCESS.
By ARTHUR B. SMITH, M.B., F.R.C.S.E.,
SYDNEY M. SMITH, M.B., Ch.B.Ed.
A brief Illustrated Outline of Recent Advances in the Technique of Treatment of Cancer in General Surgery, Gynecology, Laryngology and Dermatology.
With 18 Illustrations. 56 pages. Price 3s. 6d. net; postage 3d
London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C. 1.

FEVER, HEAT REGULATION. CLIMATE,
AND THE THYROID-ADRENAL APPARATUS.
By W. CRAMER, Ph.D., D.Sc., M.R.C.S., Imperial Cancer Research Fund, London; late Lecturer in Chemical Physiology, Edinburgh University.
With Illustrations. 8vo. 15s. net.
Longmans, Green & Co., Ltd., 39, Paternoster-row, London, E.C.4

CANCER OF THE BREAST
AND ITS TREATMENT.
By W. SAMPSON HANDLEY, M.S., M.D. Lond., F.R.C.S. Eng.
Second Revised Edition. With 82 Illustrations. 30s. net.
Published for the Middlesex Hosp. Press by John Murray, London.

BY LIEUT.-COL. ROBERT HENRY ELLIOT
M.D., B.S. Lond., F.R.C.S. Eng., I.M.S. retd.
A TREATISE ON GLAUCOMA.
2nd Edition, Revised and Enlarged. 30s. net.

TROPICAL OPHTHALMOLOGY.
With 7 Plates and 117 Illustrations. 31s. 6d. net.
Spanish and French Editions, 1922. Full German Abstract.

THE CARE OF EYE CASES: 12s. 6d. net.
A MANUAL FOR NURSES, PRACTITIONERS, AND STUDENTS
Chinese Edition. Oxford University Press.

GLAUCOMA 4s. net.
A HANDBOOK FOR THE GENERAL PRACTITIONER.

THE INDIAN OPERATION OF COUCHING FOR CATARACT.
7s. 6d. net. H. K. Lewis and Co., Ltd.

NEURITIS AND NEURALGIA.
By
WILFRED HARRIS, M.D., F.R.C.P.,
Senior Physician to St. Mary's Hospital, and to the Hospital for Epilepsy and Paralysis, Maida Vale.
Cloth. Demy 8vo. 436 pages. Illustrated. Price 12s. 6d. net.
Oxford University Press, Amen House, London, E.C.4.

JUST PUBLISHED.
THIRD EDITION. Crown 8vo. 4s. net; postage 2d.
THE INJECTION TREATMENT OF
VARICOSE VEINS.
By A. H. DOUTHWAITE, M.D., M.R.C.P. (Lond.).
London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C.1.

NEW AND ENLARGED EDITION. With an additional plate at 15s. net; post free, inland 15s. 9d., abroad 16s. 6d.
CONTRACEPTION
ITS THEORY, HISTORY AND PRACTICE.
A Manual for the Medical and Legal Professions and all Social Workers.
By MARIE CARMICHAEL STOPES, D.Sc.,
Fellow of University College, London.
Introduction by the late Prof. Sir WILLIAM BATESON, F.R.S.
Introductory Notes by Sir JAMES BARR, M.D., Dr. C. ROLLESTON, Dr. JANE HAWTHORNE, and "Obstetrica."
A few press opinions of the 1st Edition:
MEDICAL TIMES.—"The book is unique and marks a new era."
THE LANCET.—"Much of the evidence contained in the book is quite unobtainable elsewhere."
Sir Archdall Reid in NATURE.—"Some such book as this had to be written, and this is very well written."
MED. REV.—"Should be read by all interested in racial welfare." This book is the first manual on the subject, and is packed with both helpful and interesting matter and much that is new and noteworthy.
London: John Bale, Sons & Danielsson, Limited,
83-91, Great Titchfield-street, Oxford-street, W. 1.

LEWIS'S PUBLICATIONS

NEARLY READY. TENTH EDITION. F'cap. 8vo.
6s. 6d. net; postage 3d.
A HANDBOOK OF SANITARY LAW
For the Use of Candidates for Public Health Qualifications.
By B. BURNETT HAM, M.D., M.R.C.S., D.P.H.Camb., Fellow of the Royal Sanitary Institute; Fellow of the Royal Society of Tropical Medicine and Hygiene, etc.

JUST PUBLISHED. With 25 Illustrations including 17 Plates. Demy 8vo. 9s. net; postage 5d.
STERILITY IN WOMEN:
DIAGNOSIS AND TREATMENT
By SYDNEY FORSDIKE, M.D., B.S.(Lond.), F.R.C.S.(Eng. and Edin.), Surgeon to the Hospital for Women, Soho Square, London; Gynæcological Surgeon to the Kensington, Fulham and Chelsea Hospital, etc.

BRITISH MEDICAL ASSOCIATION EXHIBITION, CARDIFF,
July 23rd—July 27th.
See STAND 37 for a Selection of Standard Works on Medicine and Surgery, also Medical Stationery, Card Indexes, &c.

LONDON: H. K. LEWIS & CO. LTD., 136 GOWER STREET and 24 GOWER PLACE, W.C.1.

Atophan
TRADE MARK

The Most Effective

Uric Acid Eliminant

Immediate causal and symptomatic action in Gout, Rheumatism, Sciatica, etc.

'Atophan' Balsam for External Use

Neutralon
TRADE MARK

In Hyperchlorhydria

Antacid & Astringent

Indicated in Hyperacidity and Hypersecretion; analgesic effect in Gastric and Duodenal Ulceration.

Belladonna-'Neutralon' in Vagotonia

STAND No. 62 B.M.A. EXHIBITION, CARDIFF.

Clinical Specimens and Literature on request from

SCHERING LIMITED, 3, Lloyd's Avenue, LONDON, E.C.3

Or from the following Overseas Depôts:

SOUTH AFRICA—
Sive Brothers & Karnovsky Ltd., Johannesburg.

CEYLON—
The Eando Eastern & Oriental Trading Co., P.O.B. 357, Colombo.

BRITISH INDIA—
Schering-Kahlbaum (India) Ltd., P.O.B. 2026, Calcutta.

BURMA—
F. Schwerzmann & Co., 26, Merchant Street, Rangoon.

STRAITS SETTLEMENTS & SIAM—
Handelsmaatschappij v/h Barmer Export Gesellschaft, Singapore and Bangkok.

AUSTRALIA—
Willmott Frisk & Co. Ltd., Sydney, Melbourne, Adelaide.

NEW ZEALAND—
F. & N. Suckling, Auckland.

PLASMON

BRITISH

Plasmon Cocoa containing 50% of Plasmon proves to be a very pleasant way to take Plasmon

The protein constituents of the highest biological value combined with **the natural organic salts and phosphates of milk** make

PLASMON

an exceedingly valuable

THERAPEUTIC NUTRIENT

being most appropriate in all cases, wherein the organism is called upon to undertake increased **physical** or **psychical strain.**

In **Dysentry** or **Infantile Diarrhoea**

PLASMON

has been employed with most excellent results

A free trial supply will gladly be sent upon request

FARRINGDON ST. **PLASMON LTD.** LONDON

CHS 1

THE LANCET

No. 5473. LONDON, SATURDAY, JULY 21, 1928. CCXV.

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

DEDICATION ADDRESS
on Medical and Nursing Service. By Sir LESLIE MACKENZIE F.R.C.P. .. 105

ORIGINAL ARTICLES.
Radium Treatment of Primary Carcinoma of the Breast. By GEOFFREY KEYNES, F.R.C.S.—(*With Illustrative Plate*) 108
Post-Operative Massive Collapse. By CHARLES R. BOLAND, M.D., and JESSIE E. SHERET, M.B.—(*With Illustrative Plate*) 111
Radium Treatment of Vesical Carcinoma. By A. CLIFFORD MORSON, F.R.C.S.—(*With Illustrative Plate*) 116

CLINICAL AND LABORATORY NOTES.
Tetanus treated by Intracisternal Injection of Antitetanic Serum. By S. E. DENYER, M.D..... 119
Recovery from Amyloid Disease. By G. F. WALKER, M.D.—(*Illustrated*) 120
Lymphogranuloma with Generalised Metastases. By B. B. YODH, M.R.C.P., and S. R. JOGLEKAR, F.R.C.S. 121

MEDICAL SOCIETIES.
London Association of the Medical Women's Federation: Child Guidance .. 121
Society of British Neurological Surgeons 122
Oxford Ophthalmological Congress 123
Pathological Society of Great Britain and Ireland 124

REVIEWS AND NOTICES OF BOOKS.
Mental Disorders. By Hubert J. Norman, M.B. 125
Lehrbuch der Allgemeinen Pathologie und der Pathologischen Anatomie. By Prof. H. Ribbert. New edition by Prof. Dr. Carl Sternberg 125
Food Infections and Food Intoxications. By Prof. S. R. Damon..... 125
Die Wechseljahre der Frau. Von Privat-dozent Dr. Hans Zacherl..... 126
An Introduction to the Study of Experimental Medicine. By Claude Bernard. Translated by Henry Copley Greene, A.M. 126
Allen's Commercial Organic Chemistry. Edited by S. S. Sadler, E. C. Lathrop, and C. A. Mitchell 126

LEADING ARTICLES.
THE DEMAND FOR RADIUM 127
THE PROBLEM OF HOOKWORM 128
DICHOTOMY OR FEE-SPLITTING 129

ANNOTATIONS.
Pneumonia on the Rand.. 130
Ocular Muscle Balance in Flying Men 131
Board or Department? .. 131
Indican in the Blood 132
A Forgotten Red Cross Pioneer 132
Ultra-Violet Light Applied to Diseases of the Eye.. 133
Traffic in Narcotic Drugs.. 133
Frontier Nursing in Kentucky 134
The Modern View of Epilepsy 134
Fascial Grafting..... 134
Health Congress at Plymouth 135

MODERN TECHNIQUE IN TREATMENT.
CCLXXXV.—Treatment of Acute and Chronic Laryngitis. By W. M. MOLLISON, M.Chir. 135

THE SERVICES.
Royal Naval Medical Service.—Royal Army Medical Corps.—Royal Air Force.—Indian Medical Service 145

OBITUARY.
William Dyson, M.D., J.P. 146

SPECIAL ARTICLES.
On the Need for Standardisation in Clinical Pathology. By Sir THOMAS HORDER, M.D. 136
International Conference on Cancer: July 16th–20th, 1928: International Delegates. — Dominion Delegates.—The King's Reply to the Address.—The Ætiology of Cancer.—Cancer a Multiple Disease.—The Filterable Agent in Chicken Tumours.—Metabolism and Cancer.—Relative Values of Surgery and Radiation in Treatment.—Cancer of the Cervix Uteri.—Cancer of the Rectum.—Middlesex Hospital Dinner 139
Memorial Fund to Sir Dawson Williams 139
Sheffield School of Medicine: Centenary Celebrations 143
The Osler Club 144
Ireland: Congress of the Royal Institute of Public Health 145
Infectious Disease in England and Wales 145

CORRESPONDENCE.
Intensive Serum Treatment of Severe Diphtheria (Dr. E. H. R. Harries, Dr. W. M. MacFarlane) 146
Radiotherapy of Cancer (Lieut.-Col. Spencer Mort) 147
Migraine (Dr. F. G. Crookshank, and Dr. Estelle Cole) 147
Diphtheria Carriers (Mr. Macleod Yearsley) 148
Anatomical Nomenclature (Dr. W. Cuthbert Morton) 148
Factory Girls' Country Holiday Fund 156

PARLIAMENTARY INTELLIGENCE.
Notes on Current Topics: Reorganisation of Offices (Scotland) Bill 148
House of Lords: Child Destruction Bill.—Dogs Act (Amendment) Bill.. 148
House of Commons: Coroners Act, 1887, Amendment.—Diagnosis of Small-pox Cases.—Ex-Service Men and Medical Treatment.—Medical Certification in a Case of Lead Poisoning.—The Rating of Hospitals 150

MEDICAL NEWS.
University of Oxford 153
University of Cambridge .. 153
Royal College of Surgeons of England..... 153
University of Leeds 153
University of Liverpool .. 153
University of Manchester.. 153
University of Belfast 153
Stock Exchange Derby Fund 124
Darlington General Hospital 139
Surrey County Hospital .. 143
The New Bethlem Hospital 145
Enlargement of St. Mary's Hospital, Paddington .. 152
Industrial Welfare Society 153
National Association for the Prevention of Tuberculosis 153
William Harvey and Aberdeen 153
Memorial to a Leeds Surgeon 154
Biddulph Grange Orthopædic Hospital 154
Hospitals in Ceylon 154
Beit Memorial Fellowships for Medical Research .. 154
"Re-endowment" of Guy's Hospital 154

INDEX NOTICE.
THE LANCET, Vol. I., 1928 155

NOTES, COMMENTS, AND ABSTRACTS.
The National Institute for the Deaf..... 155
Health Instruction for Missionaries 156
Psychiatry in India 156
The Almoner's Work at an Eye Hospital..... 156
"Manson House" 156
Children and the Seaside Holiday 156
Confectionery..... 156

Medical Diary 154
Appointments.—Vacancies 154
Births, Marriages, Deaths 155

TWO NEW RECENT ADVANCES

DISEASES OF CHILDREN

By **WILFRED J. PEARSON**, *D.S.O., M.C.*, D.M., F.R.C.P., Physician in Charge of Children's Department, University College Hospital; and **W. G. WYLLIE**, M.D. M.R.C.P., Physician to Out-patients, Hospital for Sick Children, Great Ormond Street.

18 Plates and 32 Text-figures. **15s.**

SURGERY

By W. HENEAGE OGILVIE, M.D., F.R.C.S., Assistant Surgeon, Guy's Hospital.

108 Illustrations. **15s.**

STAND **68**

Members of the Profession are cordially invited to visit our Stand at the forthcoming B.M.A. Exhibition at Cardiff where other important "Recent Advances" will be shown. Numerous other New and Standard Works on Medicine and Surgery will also be displayed.

STAND **68**

London: J. & A. CHURCHILL, 40, Gloucester Place, Portman Square, W.1

OXFORD MEDICAL PUBLICATIONS

Telegrams:
OXUNIPRES,
CENT. LONDON.

Telephone:
CITY 8960.
Extension, Dept. R.

A RANGE OF THE LATEST OF THE ABOVE, COVERING THE MOST RECENT ADVANCES IN MEDICINE, SURGERY, AND ALLIED SCIENCES, MAY BE INSPECTED AT OUR STAND

No. 89

BRITISH MEDICAL ASSOCIATION EXHIBITION

To be held in the DRILL HALL, DUMFRIES PLACE, CARDIFF, July 23rd, 24th, 25th, 26th, and 27th, 1928,

INCLUDING THE FOLLOWING

THE ROBERT JONES BIRTHDAY VOLUME. 42s. net.
A collection of Surgical Essays by twenty-four writers.

GASTRO-INTESTINAL DISEASES. 10s. 6d. net.
Lectures delivered at the James Mackenzie Institute for Clinical Research.

ARTIFICIAL SUNLIGHT AND ITS THERAPEUTIC USES.
(FOURTH EDITION.) 10s. 6d. net
By F. HOWARD HUMPHRIS, M.D., F.R.C.P., D.M.R.E.

EARLY DIAGNOSIS OF THE ACUTE ABDOMEN.
(FIFTH EDITION.) 10s. 6d. net
By ZACHARY COPE, B.A., M.D., M.S.(Lond.), F.R.C.S.(Eng.)

UROLOGY AND SYPHILOLOGY. (4TH EDN.). 42s. net
By CHARLES H. CHETWOOD, M.D., LL.D., F.A.C.S.

SELF-CARE FOR THE DIABETIC. (2ND EDN.). 3s. 6d. net
By J. J. CONYBEARE, M.C., M.D.(Oxon.), F.R.C.P.(Lond.)

New Catalogue Free *Upon Application.*

The Oxford University Press

HUMPHREY MILFORD. Dept. R. (L.), Falcon Square, London, E.C.1
(And of all Booksellers).

Dedication Address
ON
MEDICAL AND NURSING SERVICE.

Delivered on June 26th at the Inauguration of the Hospital and Nursing Centre established by the Frontier Nursing Service of Kentucky

BY SIR LESLIE MACKENZIE, M.A., M.D., LL.D.,
FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS, EDINBURGH; FELLOW OF THE ROYAL SOCIETY OF EDINBURGH; EX-MEMBER OF THE SCOTTISH BOARD OF HEALTH; CROWN NOMINEE FOR SCOTLAND ON THE GENERAL MEDICAL COUNCIL OF GREAT BRITAIN.

THE Frontier Nursing Service already know the work of the pioneers in preparing the way for this assembly of inauguration and dedication. It is a story full of adventure, sacrifice, passionate enthusiasm and splendid initiative. When, some years ago, Mrs. Mary Breckinridge came to us in Scotland to see how we had faced a similar problem in medical service and nursing, we were filled with a new sense of the significance of the work we had tried to do in the thinly peopled and difficult areas of Scotland. When, therefore, I was invited by the Frontier Nursing Service of Kentucky to give verbal form to the dedication of the hospital and nursing system now established in these mountains, I felt, indeed, a glow of supreme satisfaction that our work in Scotland had found an echo in the great spaces and mountains of an American Commonwealth. The invitation was a call of the Highlands to the Highlands. It is a symbol of kinship in feeling and outlook. It is the lightning spark that reveals the essential unity of our culture. An invitation coming with this warmth and delicacy of imagination, I could not refuse and, in the name of the Scottish Highlands, I accepted it with my whole heart. When my wife and I, more than 35 years ago, dedicated our lives to the service of Scotland, we could not foresee that now, when our work is nearing its end, we should be gladdened and newly inspired by this fine compliment to our Northern Kingdom. But the privilege and honour you have conferred upon us will make it easier for us to pass into the twilight of our lives, remembering the lights and sounds and silences of these historic creeks and mountain passes and pathways.

Perhaps, however, my presence here is due to a deeper cause. I was born in Easter Ross, within sound of the North Sea and within sight of the mountains of Ross and Inverness. From my earliest memories, I have known something of the difficulties of Highland life, and when I passed into the National Service I came to the health problems of the Highlands and Islands with some understanding of the inner minds and aspirations of the people, of the difficulties due to a long and losing struggle with poverty and of the problems created by centuries of European invasion, whose story is lost in legend and mystery. The more one studies things as they are to-day, the more one is impressed with the infinite complexities of the growth of peoples. At this hour, the ten million acres of the Highlands and Islands of Scotland have scattered over them a population less than the city of Edinburgh. In our Highland area, as defined by statute in the Highlands and Islands Medical Service Act, the peoples number approximately 320,000 only. But these are scattered in islands as far north as the Shetland group, about 120 miles from the mainland of Scotland; the Orkney group, mostly visible from the mainland; the Fair Isle, a solitary island of some 200 people lying between the two groups; the remote island rock of Foula with perhaps another 200; the Out Skerries with 30 or 40 families, and then the Outer Hebrides, from Lewis to Barra, with a total population of 44,000, or the remote Atlantic rock of St. Kilda, where the population within my official life-time of 27 years has fallen from 76 to 45. No doubt, it is these varieties of difficult administration that have fascinated Mrs. Breckinridge in looking for a parallel with the difficulties of the Kentucky mountains, and there are many parallel conditions in the two countries. But most striking, perhaps, is the parallel in character and outlook, the disposition due to the necessity of facing the forces of nature alone, the relative sterility of the hills and glens, as well as the ferocities of the wind and the sea.

AN ADMINISTRATIVE DIFFICULTY.

From the map it is easy to see why the Highlands and Islands are an administrative difficulty. When a population approximately equal to the city population of Edinburgh is scattered over three-fourths of Scotland and parcelled out among the hills, the valleys and islands, the mere geographical dispersal gives rise to innumerable and persistent local problems of feeding, housing, and transport. This would be true even if the dispersed people all belonged to a single variety of civilisation. But in the Highlands and Islands are to be found strata of many civilisations. There are differences in belief, in custom, in variety of segregation, in economic sufficiency, in race, in political affinity. In every Government department—poor law, lunacy, public health, agriculture, fisheries, prisons—all these factors have to be reckoned with, and unending records show how difficult the individual problems are. Among the western islands—the Hebrides—there is scarcely one that has not its little internal war between the local middle-man and the island producer, or between the crofter and the big estate, or again, between the land interest and the industrialised fishing islands or towns, or between sections of the same island, where, perhaps, racial traditions block the way to complete assimilation, or again, between different religious groups, each claiming divine rightness for its own doctrines. Such mental segregations and specialisations often block the way to successful administration. These, and such as these, are the motive forces that have generated the complex machinery of our existing administration. The variations in the machine are reflected in the long series of commissions and committees that have had to investigate every phase of social life in the Highlands and Islands. The reports are only a record of efforts to compose the struggles of these variously civilised groups to maintain themselves, first against nature and next against their domestic enemies. Only a generation or two ago, it was "war to the knife" in the literal sense. To-day the struggles are as keen, but the methods of fighting are more subtle. But the kind of fact we constantly run up against is this: that conscription made almost no difference to the island of Lewis, with its 28,000 inhabitants, because nearly all the men of fighting age had already joined some fighting unit of land or sea; or, again, that one of the island groups most affected with tuberculosis sent relatively high proportions of men to the Navy; or that, in one parish of some seven thousand people, there are said to be 22 "places of worship," representing at least four, if not five or six, Protestant denominations; or, once more, that the Highlands and Islands send to the Universities of Scotland from 10 to 12 times as many persons in proportion to population as the rest of Scotland. The last fact I learned many years ago from my last schoolmaster, Dr. Dey, late Rector of the Grammar School of Old Aberdeen, who had the arranging of secondary departments for the Highlands Committee. A tutor of Oriel College, Oxford, once told me that the best philosophical student he had had in 30 years came from Stornoway. Recently, a book on the nature of "community" came on the philosophical world from "a young Canadian professor," who went to Canada, via Oxford, from Lewis, and is now a professor in Columbia University. How easy it would be to load pages with such facts, or with flashes of beauty from the lochs or voes, or romantic tales of old adventure, or

romantic songs from the living old world of music revealed to us by Mrs. Kennedy Fraser in her "Songs of the Hebrides"!

These things I name merely because they must be thought of as signs of the informing spirit whose organised embodiment for the purposes of our rough administrations we must state in crudely practical terms. Machines do not move of themselves, even Government machines. But the efforts of generation after generation to bring the Highlands and Islands within the working polity of modern Scotland make a pathetic record, whether we think of the suppressed clan system with its tribal wars, or the Scots Poor Law, beginning in 1424, and failing, by branding on the cheek, as it fails to-day by the poorhouse "test," to master or provide for the marginal citizen, or again, "the various crofter clearances," whose memory, in some glens and straths, is as bitter to-day as on the day they happened, or the abortive efforts to clean the islands of their people by emigration, or the failure of the potato crop, or the crofter's commissions, fisheries committees, medical committees, medical reports, attempted colonisations, medical service, and a dozen other things. These islands and glens have sent hundreds upon hundreds to the Western Continent, and to-day, among these mountains, we are in the neighbourhood of their descendants and we feel the atmosphere of the Scottish home. I have read something of the story of Daniel Boone (a man of Cornish stock) and the other pioneers, who fought their way from Pennsylvania down the valleys to the Yadkin and over these mountains into the heart of Kentucky, to help in forming the Commonwealth you now enjoy. I should like also to believe that, in these southern lands as well as in the harder north, the races and traditions of the Scottish Highlanders and Islanders have done something to help in the civilisations of the west.

Fundamental Unity of the Scottish and Kentucky Problems.

In one respect, the problem of the Kentucky mountains is essentially the same as the problem of the Scottish Highlands and Islands—namely, that the financial resources of the thinly peopled areas are rarely, if ever, sufficient to provide the same adequate services that the larger groups of population enjoy. That was the root of our problem in Scotland. It is the root of the problem in the Commonwealth of Kentucky. With us, it is largely a difficulty of the sea and its dangerous sounds, some of them impassable for weeks at a time. With you, it is largely a matter of land and river transport, where, however, the isolation may be just as great. Wherever we find the thinly populated islands or mountains, there we find difficulty in providing sufficient service. When we went the rounds of the Orkney and Shetland Islands, and the Hebrides, and many mountainous areas on the mainland, we had it said to us by many that the Highlanders were fatalists; that, in the last stages of life, they lost hope and were content to die, and that, therefore, medical or nursing service would be of little use. To a Highlander born in the Highlands this diagnosis of the social condition was only a proof of the Lowland failure to understand. How many a case I have heard of where the term "fatalism" was only a name for the proud personal independence that preferred death to the asking of favours! When, in the end, medical and nursing service has been provided, and the people feel that it is their own, they come forward in greater and greater numbers to utilise and enjoy the services provided through the State for themselves and their children. When the new movement began, even the doctors that went to the remote places were often deficient in training, or they were the men that had failed elsewhere. To-day, whenever a medical practice falls vacant anywhere, tens and twenties, and thirties and forties of medical men come forward, and the localities can choose from a highly trained body of medical practitioners. That is our answer to all that was said to us by the people that did not understand. You are having the same success as we had, and for the same reasons.

Biological Groundwork of Medical and Nursing Service: Our First Two Years.

But let us look behind the administrative machine. Why is it necessary to take such immense trouble with the first stages of life? Why should the young infant require of us so much more active help and tender consideration than the child of later ages? To this question it is not easy in a few words to give an adequate answer. For here we are face to face with the fundamental problem of social life. The solution of it involves all that the world knows of biological theory. There must be centred in the new-born infant some fundamental fact that makes it, at that stage, different from every other human being. The great miracle of birth is protected by the most powerful of human motives—the love of the mother for her child. It is a motive stronger than the fear of death. In all ages of the world, the love of a mother for her child has commanded the worship of mankind. If you think for a moment, you will understand that nothing less can preserve the life of the helpless new-born child. All our institutions for the welfare of mothers and their children have their taproot in the one great fact that, when the child dies, the race dies, and when the race dies, the great fight between life and nature is over.

It is, therefore, our duty to do what we can to guide the mother and child safely through the many dangers that threaten them in the months of expectancy and in the few critical days or hours of the confinement. If I chose, I could take from the records of the maternity hospitals long tales of damaged mothers, whose lives have been made miserable for ever by inadequate attention, or by unskilled handling, or by the necessity for the premature resumption of household duty, or by some other unfortunate combination of preventable causes. But we are not now thinking of the mothers affected with disease or deformity; we are thinking only of the normal expectant mother, who wishes to have no misgiving when the hour of her confinement comes, and who ought to have the organised care that is available to her only in the maternity home or at the hands of the scientifically trained doctor or nurse.

But there is a more fundamental reason for doing all we can to extend all the resources of the community to the care of the young human being. Consider what happens during the first year of a child's life. Its rate of growth is phenomenally rapid. For the first year, its rate of increase is 200 per cent. In its second year, the rate falls to 20 per cent. Until the age of 12, the percentage-rate of growth falls off, rising a little at 13, and then sinking until it comes almost to zero somewhere between 20 and 23. This is for boys. For girls the pace is not quite so rapid, but is practically the same. Recently, it has been held and, on the whole, demonstrated by biologists that senescence—that is, the process of growing old—varies in speed at different periods of life. Ordinarily, we are accustomed to think of senescence as applying only to men and women that have passed middle life. But it is now known that the process of senescence and rejuvenescence is a phenomenon applicable to all ages and to all growing organisms. Briefly, senescence is a process whereby the growing organism carries on with it certain products that ultimately clog the machinery and produce death. Through life, in various ways, there are periods of rejuvenescence, when those accumulated products may be thrown off and a person takes, as we say, a new lease of life. It is not possible here to discuss the theory fully; but the important point in it is that the process of senescence—that is, quite literally, the process of growing old and incapable of rejuvenescence—goes on most rapidly in the early years of life. As Mr. Charles Manning Child, of the University of Chicago, in his wonderful research on "Senescence and Rejuvenescence," puts it: "The rate of senescence is highest in youth and lowest in

advanced life." The process of senescence is most rapid when the process of growth is most rapid. As, therefore, growth is most rapid in the earliest period of infancy, the child, during that period, may correctly be said to be racing at full speed into old age. Put otherwise, this means that in the period from conception to the end of the second year the child's organs and faculties become rapidly so fixed, that if his nurture through that period is not sound he will suffer disproportionately for all the rest of his days. Anyone that has watched the birth and nurture of young animals can tell you that if the infant animal does not get a good and correct start he never develops to the full stature or power of an adult. It is the same with human beings. Recently, too, the researches into diet have shown that the young and rapidly growing infant is peculiarly susceptible to the influence of extraordinarily minute quantities of particular food factors. The absence of an infinitesimal amount of a given substance will end in the production of rickets or scurvy. These well-known facts confirm the general conclusion of the biologists that the first months of life are of immense potency in determining the whole future course of individual development. Probably, if we could secure that our expectant mothers shall be properly fed and that they shall be fit to feed their new-born infants, we should not, later in life, have to spend fortunes in preserving our teeth or in procuring substitutes. That is only one very gross illustration of what I mean. But, broadly, the fact that the beginnings of all the child's organs are laid in the first few months after conception, and that the pace of his growth during the first year or two determines his healthiness or unhealthiness for the rest of his life, should alone be enough to justify us in focusing upon the early hours and weeks and months of infancy all the science and skill that we are able to command.

How Scotland has Faced the Problem of the Highlands and Islands.

It is not possible to give details of all our schemes. But the essence of the case is this: over 27 years ago we knew from experience that public health problems, like infectious disease, tuberculosis, typhoid fever, typhus fever, and the many others, could not be sufficiently provided for in the Highlands and Islands without national assistance. When the National Insurance Act of 1911 was passed, the Highlands and Islands, being largely a land of small holders, not of wage-earners, could not provide a sufficient population, even of insured wage-earners, to secure the benefits under the new Statute. It then became obvious to everybody in power, as it had been to the experts for years before, that, as in education so in health, the resources of the Highlands were inadequate for certain primary purposes. When, however, the first Insurance Act was passed, money was made available by Parliament and, on the basis of the Dewar Committee's Report, the Highlands and Islands Board was constituted. This Board was afterwards absorbed into the Scottish Board of Health. Parliament had voted a sum of £42,000 to accumulate year after year. This was before the war. Unfortunately, the difficulties of the war compelled us to stop the accumulation of capital and to expend it in such services as were possible in a time when every difficulty was at its greatest. Doctors by the score had to serve in the Army. We had to provide such substitutes as were available. But the large schemes we had prepared had to remain for a more favourable moment. Since the war, however, the projected developments are progressively appearing. In the year 1927, for example, we spent £70,000—that is, about 350,000 dollars—in the various medical services and nursing services. The primary objective of the whole system is so to adjust the service that the doctor shall be able to attend a patient 25, or 30, or 40 miles distant, or across a difficult sound or loch on the same terms as he would attend the people in his immediate neighbourhood. We aimed at eliminating from the charges the factor of distance. To do this we had to subsidise many doctors for their loss of fees. In other areas, single practice areas, we make up to the doctor a sufficient salary. In very poor areas we guarantee to the doctor a minimum salary that will attract good men and enable them to educate their families and to maintain their own professional education. In these types of service we spend £43,000 a year—that is, about 165,000 dollars. On nursing services we spend £13,300 a year, or over 66,000 dollars. We help with telegraphs and telephones. We subsidise the tuberculosis scheme. But perhaps the most important development of the whole system is the provision of operating surgeons for important localities. For instance, we provide a consultant operating surgeon for the Shetland group of islands, at a salary of about £900 a year, plus special earnings. In the Island of Lewis we similarly maintain an operating surgeon. In that island we have contributed £12,000 (60,000 dollars) to the extension of an admirable cottage hospital, which was opened a few weeks ago by the Under Secretary of State for Scotland. This serves a community of over 30,000 people. In both Lewis and Shetland these hospitals are maintained by voluntary subscriptions. A similar scheme is afoot for the Orkney group of islands. It is certain that in the next few years the scheme for providing operating surgeons will be extended. The young men appointed are carefully selected from the great medical schools. They must have a wide basis of surgical experience. It is gratifying to record that in the two instances up to date the people have come forward in a marvellous way. The operations performed run into hundreds. The medical men of the locality work cordially with the consultant surgeon. In all those island groups, also, there is a county medical officer of health, who sees to the medical examination and treatment of the school-children and the pre-school-children. The consultant surgeon thus becomes an integral part of the general medical and preventive service of the community. It is needless to say that all these medical services are supplemented by trained nurses. In fact, it is worth noting that in the Highlands and Islands Medical Service Act, under which Parliament voted the original grant, the term "medical service" specifically includes nursing service. So far as I know, this is the first time in a British Statute that nursing service has been included as a specific part of medical service. Doctors' houses and nurses' houses can be provided under the scheme and many such houses have been provided. Our aim is, where necessary, to provide at the nurses' house accommodation for one or more sick cases when the distance between her and her work is too great.

The Highlands and Islands medical service system began to operate effectively in 1914. Since that date to the end of 1927; we have spent nearly £660,000 (that is something over 3,000,000 dollars). Of this total, nearly £500,000 (say, 2,500,000 dollars) has been spent on medical service alone. Nursing associations have been subsidised to the extent of £95,000 (say, 475,000 dollars). The full details of all the scheme are in a form that can be easily studied by any person concerned with similar problems. This is what the small Northern Kingdom is doing for a handful of 320,000 people.

The Frontier Nursing Service.

I have been speaking of Scotland, but I have been thinking of Kentucky. With you, as with us, the mother and child demand intensive care. With you, as with us, there is the ever-recurring tragedy of hardship and death. Think what it means when a family loses the mother. The infant is robbed of its nurse; the other children are robbed of their first friend and teacher; the husband is robbed of his companion and confidant. The death of the mother means the maximum of unhappiness to the family she leaves. It is in this light that we must study the facts and in this light the facts are like no

others. To preserve the life of mother and child is the problem before the Frontier Nursing Service. It needs only to be put into words to command the interest and sympathy of every humanist.

This hospital is the radiating centre of the nursing service in these mountains. The maxim of the trained nurse is: "You need me? I am ready." The hospital is a temple of service where the lamp never goes out. There will always be a waking ear listening for the distant cry of a mother in distress. There will always be an officer ready to go forth in the spirit of help and loving kindness. Here, in this temple of humanism, every hour is filled with a clear ideal. The mothers and the fathers know that here they have friends that they can come to and speak to, and live with. Through these mountains and forests, the Frontier Nursing Service will become a gracious presence transfiguring the individual lives. It makes an appeal that no one in the end can resist. The service draws its life from an unfailing fountain of human sympathy and love. That is what inspires the skilled and brave nurses to face the day's duty without misgiving; to feel that the least of duties is a great and holy thing and to live for all their working days in the atmosphere of creative friendship. Here, in their hours with one another and their tales of adventure, they will keep warm the fires of woman's social genius. They will always feel that, here on the frontier outposts, they are living out the true purpose of the Commonwealth—to prepare a worthy and dignified place for every child born to it.

ACT OF DEDICATION.

In all reverence, I dedicate this hospital to the service of this mountain people. The act of dedication will have consequences beyond all imagination. It will evoke responses along the many hundred miles of these mountain frontiers and among the millions of their people. The beacon lighted here to-day will find an answering flame wherever the human hearts are touched with the same divine pity. Far in the future, men and women, generation after generation, will arise to bless the name of the Frontier Nursing Service.

RADIUM TREATMENT OF PRIMARY CARCINOMA OF THE BREAST.*

BY GEOFFREY KEYNES, M.D. CAMB., F.R.C.S. ENG.,

ASSISTANT SURGEON, ST. BARTHOLOMEW'S HOSPITAL; LATE FIRST ASSISTANT, SURGICAL PROFESSORIAL UNIT.

(With Illustrative Plate.)

THE Surgical Professorial Unit at St. Bartholomew's Hospital, under the direction of Prof. G. E. Gask, was entrusted in 1922 with a supply of radium to be used under research conditions for the treatment of carcinoma of the breast. For three years this was used only for the treatment of recurrences which had appeared after operation. The results were instructive if unsatisfactory, for it was shown that a nodule of carcinoma could be made to disappear by local treatment with radium, although it hardly ever prolonged the patient's life, the disease having been already disseminated to more distant parts. This preliminary experience justified the extension of the treatment to primary carcinoma of the breast, and the first patient in this category was treated in August, 1924. Up to the end of June, 1928, 42 patients had been treated.

The technique and the principles of its application were tentative in the beginning, and it is unnecessary to describe in detail the stages through which they passed. The main directions in which they developed have been: (1) to distribute the dose in smaller units; (2) to prolong the time of exposure; (3) to increase the area treated; (4) to extend the routine treatment of the areas of lymphatic drainage until every accessible area was receiving what appeared to be an adequate dose.

* Being the basis of a communication made to the International Cancer Conference on July 19th.

Technique.

The technique used at the present time (July, 1928) is as follows:—

1. The patient is anæsthetised with gas and oxygen. It is seldom necessary to use any additional kind of anæsthetic.

2. The skin of the chest wall, axilla, and most of the neck is thoroughly cleaned with ether.

3. A series of punctured wounds are made in the skin round the site of the carcinoma with a pointed scalpel (Bard Parker blade No. 11). These punctures are about 1·5 cm. apart, and placed so that when the longest needles have been inserted the whole of the carcinoma and a considerable area surrounding it will be evenly illuminated by the radiations. Sometimes the intensity is increased by inserting the needles at two different levels in directions at right angles to one another (see diagram) so that a "grid" of needles is formed. If this greater intensity is likely to cause burning of the skin by reason of the thinness of the patient, or to cause massive sloughing of the growth by reason of its avascularity or of its being already ulcerated, only a single layer of needles is inserted.

4. Similar punctures are made for the insertion of needles into (*a*) the axilla; (*b*) beneath the pectoralis major; (*c*) above the clavicle; (*d*) below the clavicle; (*e*) over the first three or four intercostal spaces.

5. Needles of suitable length are then inserted (*a*) into the axilla with their points converging into the apex, so that the axillary glands will be illuminated by a cone of needles; (*b*) beneath the pectoralis major if there is a considerable space between the primary growth and the axilla; (*c*) deep to the superficial veins of the neck and deep cervical fascia so as to be in contact with the supraclavicular glands; (*d*) deep to the pectoral muscle on the costo-coracoid membrane; (*e*) obliquely into the intercostal spaces so as to be in contact with the parasternal or internal mammary glands.

6. Before the needles are inserted, each has a strand of salmon-gut threaded through the eye and knotted once. These are allowed to protrude from the punctures in the skin, and are knotted in bunches, so that if a needle comes out of place it will remain attached to the others, and will not be lost.

7. The skin is cleaned and the area under treatment is covered with gauze, which is secured in position by broad strips of adhesive rubber strapping. This overlaps the gauze all round, and forms an additional safeguard against the loss of needles. The whole is covered with wool and bandaged.

8. The needles are allowed to remain in position for at least a week, and sometimes for as long as ten days if the tumour is a large one. They are then removed under gas and oxygen anæsthesia. A specimen for microscopic section has been taken at the same time in every one of the present series, since it was necessary to have full proof that the tumour was a carcinoma. This was taken after irradiation rather than before in the belief that implantation of the growth in the incision was less likely to occur.

9. Whenever possible the patients were examined at monthly intervals for the first year. Thereafter the intervals might be lengthened to two or three months. Otherwise a report was obtained from the patient's doctor. The majority of the patients have been consistently kept under my personal observation.

10. A few patients were submitted after about three months to a second treatment with radium, and one patient received three applications.

Details of Apparatus.

For the adequate treatment of primary carcinoma of the breast it is advisable to have available 95 mg. of radium element. For some cases 60 or 70 mg. is enough, but for the larger tumours more is needed. The greater part of the radium, in the form of radium sulphate, should be contained in platinum needles each containing 3 mg. distributed along an active length of 4·8 cm. Experience has shown that needles of this size are convenient and give good results, though it is, of course, not essential that they should have exactly these measurements. These long needles are used for irradiating the tumour and the axillary lymph glands. A few shorter needles containing 2 mg. radium element with an active length of 3·2 cm. are needed for the supra- and infra-clavicular regions and the intercostal spaces. The platinum case of

each needle should have a thickness of about 0·5 mm. The stock of needles should therefore be made up approximately as follows:—

Number.	Ra element content.	Active length.	
25	3 mg.	4·8 cm.	95 mg.
10	2 mg.	3·2 cm.	

A typical distribution of needles is shown in the accompanying diagram.

It is convenient to have three forms of introducer for placing the needles in position. Two of these are large forceps on the principle of the Spencer-Wells

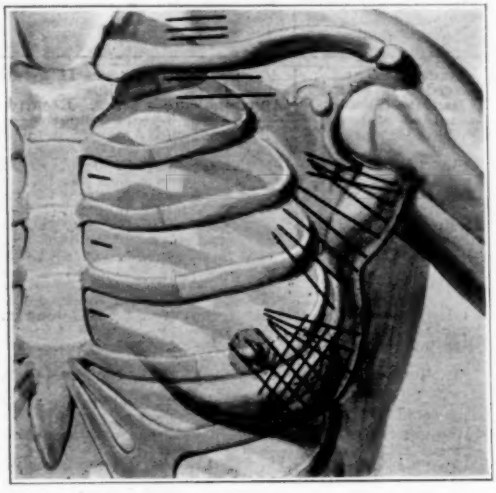


Diagram showing typical distribution of radium needles. (From a drawing by T. L. Poulton.)

hæmostat with grooves cut in the jaws so that the needles can be gripped without damage. One holds the needles in the line of the forceps, the other holds them at right angles. A third introducer may be useful when a needle has to be placed at some distance from the skin, or when the tissues are very tough. This is made on the principle of the trocar and cannula. The trocar is made to project more than the full length of the needle beyond the cannula. When the trocar is withdrawn the needle is pushed by a stile along the cannula and into the track made for it by the trocar.

Patients Treated.

When the investigation was in its initial stages it was clearly right to treat only those patients who seemed to be unsuitable for operation owing either to the position of the growth or to its being adherent to the chest wall. Later, as confidence in the treatment was engendered by the results, patients who formerly would have been submitted to operation were treated with radium, and there has been no reason to regret this. It may be pointed out, however, that on the whole the class of patient treated has been very unfavourable as regards prognosis, and this must be remembered in judging the results.

Results.

(*a*) *Primary Growth.*—The effect of irradiation upon the primary growth usually begins to be plainly seen within a fortnight of the insertion of the needles. The tumour becomes smaller and less fixed and ulceration tends to heal. In a favourable case this shrinkage is progressive until at the end of about three to four months no tumour can be detected. If at the end of four months a tumour is still present and seems to be stationary, a second treatment may be given or occasionally a local excision of the residual mass is performed. In one case a third treatment was given 18 months after the first, which resulted in the final disappearance of the tumour.

(*b*) *Lymphatic Glands.*—In the majority of the patients treated the only enlarged glands that were detected were in the axilla, the rest of the treatment given to lymphatic areas having been prophylactic. The effect on the enlarged glands has been uniformly satisfactory. Usually they have disappeared entirely, even when they had been very large, leaving no trace or only a slight thickening where they had been. So far no recurrences have taken place in any of the lymphatic areas treated prophylactically. The intercostal spaces have been irradiated only in the more recent cases.

Statistics.

Up to the end of June, 1928, 42 patients have been treated. One of these was a male. All were proved by histological examination to have carcinoma of the mammary gland. The operability was as follows: inoperable, 17; operable, 22; doubtful, 3.

Of the inoperable class six died of metastatic growths. None of these lived more than nine months after treatment, though all had shown local improvement and in two the primary growth had entirely disappeared. One (the only male) died of intercurrent disease after having been apparently cured for one year and seven months. One patient reckoned operable, though very unfavourable, died of septicæmia some weeks after local removal of the breast following two radium treatments, the carcinoma having recurred outside the area treated. Of the 34 patients that are alive, two are known to have metastases in bones and four have recurrences. In two the recurrences are in the area treated, in two outside it. Of the 28 patients that remain:—

Apparently cured	13
Tumour almost gone	1
Greatly improved	2
Improving	7
Recent (within 3 months)	5

In the cases of the 13 patients who are "apparently cured," the following times have elapsed since the first treatment:—

One, 4 years; one, 3 years 2 months; one, 2 years 2 months; one, 2 years; one, 1 year 11 months; two, 1 year 5 months; one, 11 months; one, 10 months; two, 9 months; two, 8 months.

The term "apparently cured" may be taken to mean that the primary tumour and axillary glands, if any were detected, have disappeared; in some the tissues seem to have returned to normal, but in others the destruction of the carcinoma has left some scar tissue in its place.

Of the 13 patients in this category there were: inoperable, 6; doubtful, 1; operable, 6. Among the four longest "cures" (two years and upwards), three patients were "inoperable." One of these (two years) had a large growth with a secondary mass filling the axilla. Radium was applied three times, and the successive stages in the disappearance of the tumour are shown in the photographs on the Special Plate. The patient has gained in weight and general health and has been a startling example of the results that may be obtained with radium in an apparently hopeless case. The patient who has been "cured" longest (four years) had a small growth, which was excised locally after treatment with a dose of radium now to be regarded as inadequate. She was the first patient treated and I should anticipate that excision in such a case would not now be necessary, as exemplified by the third patient treated (apparently cured three years and two months).

In order to reduce this statistical survey to its simplest terms, it will be best to eliminate the recent cases, and the single patient (although apparently cured) who died of intercurrent disease. This leaves 26 patients in whom something approaching a *result* may be claimed of not less than eight months' duration. The results are then as follows:—

Apparently cured	13*
Died of metastases	6
Alive, with metastases	2
Alive, with recurrences	2
Died following recurrences	1

* Inoperable or doubtful 7, operable 6.

A good result, therefore, has been obtained in half the patients treated, although only seven out of 26 could be regarded as operable. Of the seven operable patients, six are apparently cured. As the proportion of operable cases increases, the results may be expected to improve correspondingly. It is, perhaps, permissible to emphasise the fact that of 17 patients with inoperable or doubtfully operable growths seven are apparently cured. Some of these will no doubt succumb later on to metastatic growths in other parts of the body, but in the meantime the benefit which they have received cannot be questioned.

Histological Evidence.

As already stated, histological evidence of the nature of the growth has been obtained in every case. This was simply in order to prove that carcinoma was present, and only a very small specimen was taken

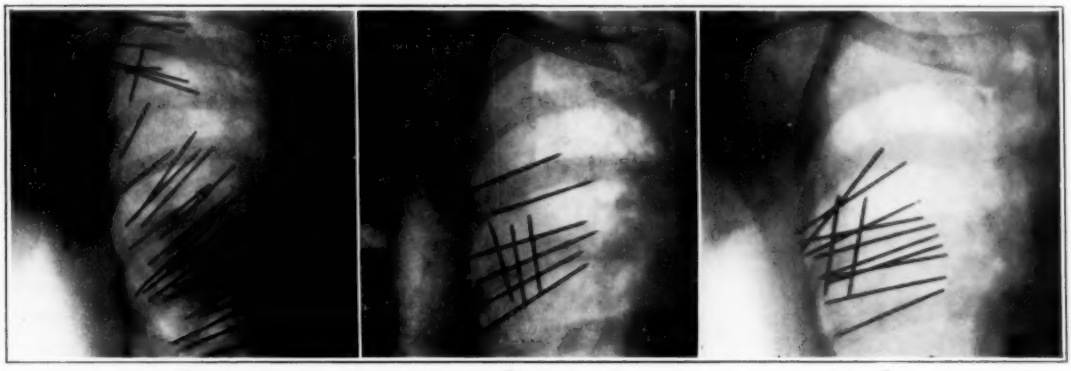
TABLE GIVING RESULTS OF RADIUM TREATMENT OF PRIMARY CARCINOMA OF THE BREAST.

Cases 10, 24, and 27 are Illustrated on the Special Plate.

No.	Date of (first) treatment.	Type of case.	Axillary gland.	Treatment.	Result.
1	August 1st, 1924.	Ulcerated; scirrhous. Inoperable.	−	Radium (3) and excision of scar.	Apparent cure 3 years 11 months.
2	Jan. 29th, 1925.	Contracting; scirrhous. Inoperable.	−	Radium (2) and excision of scar.	Apparent cure 3 years. Recurrence in scar 3 years 2 months.
3	May 5th, 1925.	"	+	Radium only.	Apparent cure 3 years 2 months.
4	May 1st, 1925.	Massive growth. Inoperable.	−	Radium and removal of breast.	Local improvement. Died of metastases 8 months.
5	June 11th, 1925.	"	+	Radium and deep X rays.	Local improvement. Died of metastases 2 months.
6	July 10th, 1925.	Ulcerated; scirrhous. Inoperable.	+	Radium only.	Disappearance of tumour. Died of metastases 6 months.
7	August 12th, 1925.	Massive growth. Inoperable.	+	Radium only (2).	Local improvement. Died of metastases 9 months.
8	March 23rd, 1926.	Scirrhous. Operable.	−	Radium only.	Apparent cure 1 year 7 months. Died of abdominal tuberculosis.
9	May 18th, 1926.	Small growth. Operable.	−	Radium and excision of scar.	Apparent cure 2 years 2 months.
10	July 13th, 1926.	Massive growth. Inoperable.	++	Radium only (3).	Apparent cure 2 years.
11	August 6th, 1926.	Contracting; scirrhous. Inoperable.	−	Radium only.	Apparent cure 1 year 11 months.
12	Nov. 19th, 1926.	"	+	"	Recurrence beyond area treated 1 year 7 months.
13	Dec. 21st, 1926.	Contracting; scirrhous. Operable.	+	Radium (2) and local excision.	Death from septicæmia after excision 1 year 3 months.
14	Feb. 10th, 1927.	Massive growth. Inoperable.	−	"	Apparently cured 1 year 5 months.
15	Feb. 17th, 1927.	Ulcerated; scirrhous. Operable.	+	Radium only.	Apparently cured 1 year 5 months.
16	April 14th, 1927.	Massive growth. Operable.	+	Radium only (2).	Disappearance of tumour. Recurrence in pectoralis muscle 11 months.
17	May 20th, 1927.	Ulcerated; scirrhous. Inoperable.	+	Radium only.	Died in infirmary 9 months.
18	June 18th, 1927.	Massive growth. Operable.	++	Radium only (2).	Great local improvement. Died with metastases 9 months.
19	August 2nd, 1927.	Contracting; scirrhous. ? operable. Mass in axilla.	++	Radium only.	Apparently cured 11 months.
20	August 9th, 1927.	Scirrhous. Inoperable.	+	Radium only (2).	Recurrence outside area treated. Original tumour disappeared 11 months.
21	Sept. 20th, 1927.	Ulcerated; scirrhous. Operable.	−	Radium and excision of scar.	No recurrence 10 months.
22	Oct. 25th, 1927.	Small growth. Operable.	−	Radium only.	Disappearance of tumour 9 months.
23	Oct. 25th, 1927.	"	−	"	"
24	Nov. 4th, 1927.	Ulcerated; scirrhous. Inoperable.	+	"	Disappearance of tumour 8 months.
25	Nov. 30th, 1927.	Massive growth and mass in axilla. ? operable.	++	"	Not seen again. Has metastases in bones.
26	Dec. 16th, 1927.	Medium growth. Operable.	−	Radium only (2).	Disappearance of tumour 8 months.
27	Dec. 16th, 1927.	Ulcerated; scirrhous. Inoperable.	+	Radium only.	Healed. Tumour almost gone 8 months.
28	Jan. 6th, 1928.	Small growth; large masses in axilla. Inoperable.	+++	"	Tumour gone. Axillary glands much smaller. Metastases in spine 6 months.
29	Feb. 10th, 1928.	Massive growth and skin nodules. Inoperable.	++	X ray treatment, Ovariotomy, radium.	Improving 5 months.
30	Feb. 17th, 1928.	Medium growth. Operable.	−	Radium only.	Disappearance of tumour 5 months.
31	March 30th, 1928.	Massive growth. Operable.	−	"	Improving 4 months.
32	April 18th, 1928.	Medium growth. Operable.	+	"	"
33	April 20th, 1928.	Medium growth. Nipple ulcerating. Operable.	+	"	"
34	April 27th, 1928.	Massive growth. ? operable.	+	"	Improving 3 months.
35	April 27th, 1928.	Massive growth. Operable.	−	"	"
36	May 11th, 1928.	Ulcerated; scirrhous. Operable.	−	"	Improving 2 months.
37	May 18th, 1928.	Small growth. Operable.	+	"	"
38	June 1st, 1928.	Massive growth. Operable.	−	"	Improving 1 month.
39	June 8th, 1928.	"	−	"	"
40	June 8th, 1928.	Adherent growth. ? operable.	−	"	"
41	June 22nd, 1928.	Massive growth; ulcerated. Inoperable.	+	"	"
42	June 22nd, 1928.	Medium growth. Operable.	+	"	"

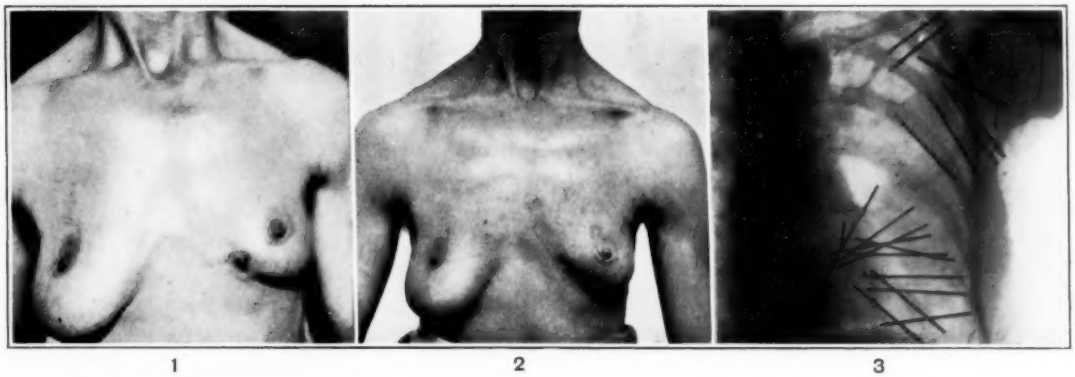
A

1 2 3



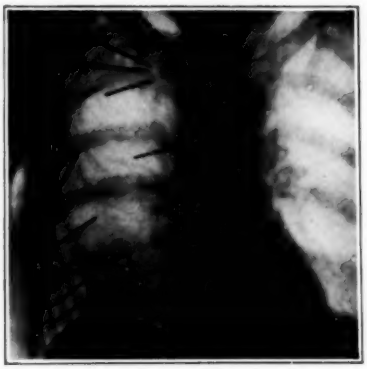
4 5 6

B



1 2 3

C

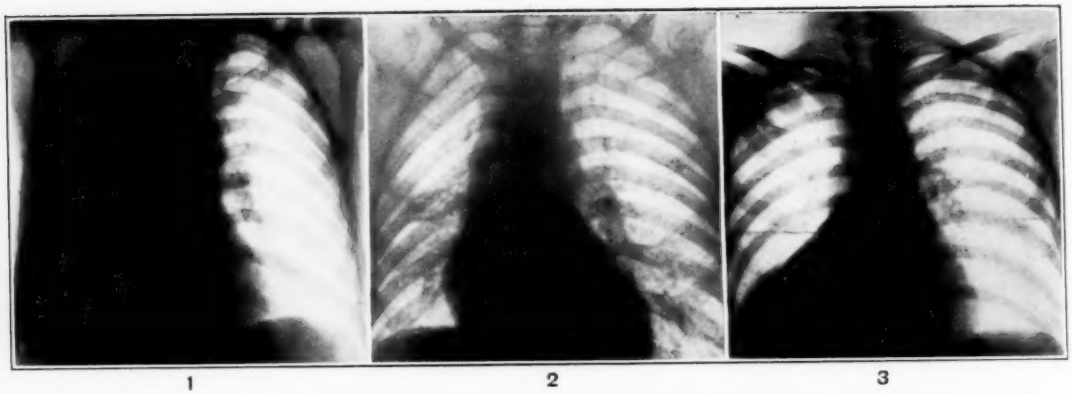


A. Case 10, inoperable carcinoma, apparently cured, in three stages: (1) 23.vii.1926, shortly after first insertion of radium; (2) 2.v.1927, before second insertion; (3) 3.vii.1928, six months after third insertion; (4), (5), (6) showing the three stages in the insertion of radium, on 14.vii.1926, 6.v.1927, and 19.i.1928, respectively.

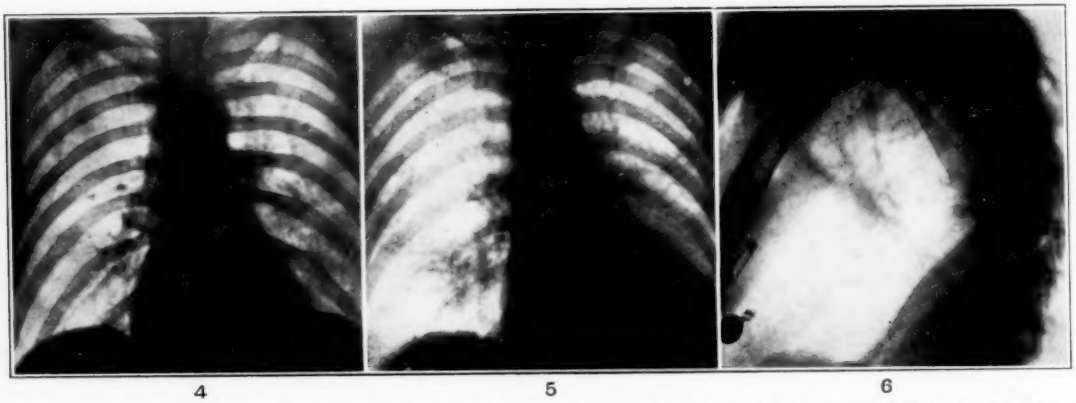
B. Case 24, scirrhous carcinoma, fixed to chest wall, apparently cured: (1) 3.xi.1927, before treatment; (2) 13.ii.1928, four months after insertion of radium, no tumour remains; (3) 4.xi.1927, showing distribution of radium.

C. Case 27, insertion of radium 16.xii.1927, showing distribution of needles.

MR. GEOFFREY KEYNES: RADIUM TREATMENT OF PRIMARY CARCINOMA OF THE BREAST.



1 2 3



4 5 6

DR. BOLAND AND DR. SHERET: POST-OPERATIVE MASSIVE COLLAPSE OF THE LUNG.

(*References in the text.*)

2 3 4

5

FIGS. 2 and 3.—Cystoscopic appearance of the mucous membrane of the bladder three months after irradiation of a malignant growth.

FIG. 4.—Ulcerating growth of the whole of the left lateral wall of the bladder three months after treatment with radium. Note the raised edge surrounding the mass of dead growth.

FIG. 5.—Bullous œdema of the left half of the internal meatus of the bladder following radium treatment for carcinoma.

MR. CLIFFORD MORSON: RADIUM TREATMENT OF VESICAL CARCINOMA.

from the most superficial part of the growth. Knowing how much the histological appearance of a carcinoma varies in different parts of the tumour, I have not thought it worth while to make any attempt to correlate the results with the morphological type as seen in the specimens removed.

If the response to irradiation seemed to be satisfactory, no surgical operation was performed. In a few instances excision of the area treated was carried out. In the two patients first treated, although great improvement had resulted, the area treated was excised in order to obtain information. Both specimens were found still to contain some carcinoma cells, but both had received what I should now regard as an inadequate dose. In spite of this, one of the patients is still quite well after the lapse of nearly four years. The other has recurrences. In a patient treated somewhat later in the series (No. 4), a massive growth was excised five and a half months after treatment of its deep surface with radium. Sections of the irradiated surface of the growth showed that very few carcinoma cells remained in this part, though there was more carcinoma still active at a greater distance from the radium. The tissues undoubtedly protect those cells which are on that side of the tumour most distant from the radium, and it is not always possible to expose every cell to a lethal dose. This screening effect was interestingly shown in a patient who had a massive inoperable growth with discoloured bosses on the skin surface (No. 14). After two radium treatments the bosses had disappeared and the whole tumour was greatly reduced in size. There was, however, a residual mass after nine months which I thought it was wise to excise. Cross-sections through the specimen showed that it consisted almost entirely of fibrous connective tissue from which all evidence of carcinoma had disappeared, *except* for a few cells immediately under the epidermis. These cells were not normal in appearance and perhaps might have disappeared later; in any case the excision has proved satisfactory, and the patient is quite well after one year and five months. A similar residual lump excised from another patient, one year and four months after radium treatment, was found to consist of fibrous connective tissue only and no trace of carcinoma could be discovered.

Local excision has been called for in comparatively few patients, and the histological evidence is necessarily incomplete. It has, however, served to demonstrate both the partial and complete destruction of a carcinomatous growth by radium.

Advantages of Radium Treatment.

The insertion of radium needles is a trivial operation compared with Halstead's operation, and can usually be done under gas and oxygen anæsthesia. The mortality-rate should be nil. In a favourable case an apparent cure can be effected without any mutilation whatever. The lymphatic drainage can be dealt with more extensively with radium than by dissection, since it is possible to treat effectually not only the axilla, but also the supra- and infra-clavicular regions and the intercostal spaces. In no case hitherto treated has any œdema of the arm followed the application of radium. Radium can be applied with benefit to all but the largest tumours, and an apparent cure can be effected in a considerable proportion of cases which are unsuitable for any operation.

Disadvantages of Radium Treatment.

The cost of radium is at present so high that a capital outlay of £1500 is necessary for treating one patient at a time; but the stay in hospital is usually not more than ten days, so that at least twice as many patients can be treated by radium as could be treated by operation with the same hospital accommodation in the course of a year. It seems to be impossible to avoid causing in some patients a superficial skin burn, particularly in those who are thin. This results in some discomfort for several weeks, but no permanent disability results. Occasionally a very vascular tumour has sloughed away leaving an ulcer which is slow to heal. Perhaps further experience with the regulation of the dosage may lead to avoidance of this trouble.

Conclusion.

The published statistics of the end-results of the treatment of carcinoma of the breast by operation have not been very encouraging. One of the most convincing statistical reports of recent years is that compiled by J. F. C. Braine and Grant Massie and published in the *Guy's Hospital Reports* for 1926. Of the 338 cases there traced, 54 per cent. were alive at three years after operation and only 28 per cent. were alive at five years. The average of the figures published by 23 authorities from 1896 to 1926 gives a survival-rate of 41·4 per cent. for five years. If, therefore, a method other than operation is adopted, it will not find itself in competition with any very efficient means of treatment, and the results will be bad indeed if they are worse than those of operation. Furthermore, the Guy's Hospital statistics have shown that "the average period of survival is inversely proportional to the magnitude of the operation." This statement is in a sense fallacious, since it is probably true only of the advanced cases such as are commonly seen in hospital practice; yet it is clear that operation introduces a factor adverse to the patient's interests, and it might be expected that any other treatment which is locally effective will produce better results in the end. Even if the results of alternative treatment were only as good as those of operation, an alternative which rendered removal of the breast unnecessary would obviously be preferred.

I am not aware that any treatment has yet been introduced for which the claim has been made that it is better than operation for the average case of carcinoma of the breast. In the present article I have tried to describe the results of a method of treatment with radium which seems to promise results comparable with, or even better than, those of operation. Many years must elapse before a final opinion can be expressed, but the results are sufficiently remarkable to suggest that their publication should not be any longer delayed.

Several of the patients treated were referred to the surgical unit by other members of the surgical staff at St. Bartholomew's, and to them my acknowledgments are due.

POST-OPERATIVE MASSIVE COLLAPSE.

By CHARLES R. BOLAND, M.D., M.Sc. Dub.,

FORMERLY HOUSE PHYSICIAN AND HOUSE SURGEON, ANCOATS HOSPITAL, MANCHESTER;

AND

JESSIE E. SHERET, M.B., B.S. Durh., D.M.R. & E. Camb.,

RADIOLOGIST, ANCOATS HOSPITAL, MANCHESTER.

(*With Illustrative Plate.*)

THE fact that abdominal operations may be followed by pulmonary complications has been recognised since the dawn of abdominal surgery, but despite steady advances in surgery the only tangible addition to our knowledge of the abnormal processes in the lung has been the recognition, in 1908, by William Pasteur,[1] of massive collapse. This Pasteur described as a condition in which extensive areas of lung tissue, varying in size from a large portion of one lobe to a whole lung, became quite airless, blue and obviously shrunken, and sank immediately in water. The characteristic physical signs were purely mechanical accompaniments of the loss in volume, to make up for which the chest on the affected side became retracted and immobile, and the heart and mediastinum moved towards the affected side. So vehemently did Pasteur insist that massive collapse could only be suspected in the presence of this cardiac displacement that post-operative pulmonary complications have ever since fallen into three main groups.

The first is composed of cases exhibiting the essential signs of massive collapse as described by Pasteur. The second comprises cases which were regarded as post-operative pneumonia, because cardiac displacement could not be demonstrated. The third includes a few easily recognisable complications, notably those of embolic origin.

Our investigations very early showed that post-operative pneumonia is almost a chimera and that the distinction between the first two groups is little better than a shibboleth. In other words, the vast majority of all complications are massive collapses, which may or may not be accompanied by demonstrable cardiac displacement.

We followed the convalescence of 261 patients from abdominal operations of all grades of severity, with reference to the possible occurrence of declared or latent alterations in the lungs. All the cases were nursed in a more or less fully developed Fowler position.

The X Ray Appearance.

Although the physical signs of massive collapse, whether or not accompanied by demonstrable cardiac displacement, are very characteristic, its most striking manifestations are in the radiographic films, particularly when it affects the whole of one lung. (Fig. 1.)[3] The shadow cast by the airless lung is at least as dense as that caused by a thick layer of fluid, and may even obscure the rib outlines. The cardiac and mediastinal shadows, including that of the trachea, are much displaced towards the affected side, the diaphragm is elevated, and the ribs fall together so as to assume a tiled appearance.

When one or other lower lobe is involved alone, the shadow is equally dense and occupies a triangular area which, on the left side, may be almost completely overlapped by the heart. This area always indicates by its size that the affected lower lobe is much diminished in volume and, when cardiac displacement is demonstrable clinically, the degree of migration of the mediastinum and tiling may be as extensive as when the whole lung is collapsed (Fig. 3). More often the evidence of displacement is so slight as to render clinical detection impossible, and quite frequently it is entirely absent (Fig. 5). A lateral view, however (Fig. 6), shows at once that the whole lower lobe is far more shrunken than would be suspected from an antero-posterior view, and that it is completely pushed back into the posterior costo-phrenic angle by the aerated upper lobe. For the diagnosis of massive collapse, therefore, we come to Dr. Twining's[2] suggestion that we should rely on evidence of displacement of the interlobar septum, as seen in the antero-posterior and lateral views, and not on mediastinal displacement.

The first indication of the onset of massive collapse is a mottled appearance in the lung, developing during the first 24 hours after operation (Fig. 4). We have only once watched this go on to a collapse associated with marked mediastinal and cardiac displacement, because the collapse was usually fully established at the time of the first examination, but it has occurred with great frequency in the earliest stages of those cases which do not subsequently show displacement clinically. This mottling nearly always occurs in the lower lobes only, on one or both sides, and appears to be due to areas of lobular collapse, which coalesce to form massive collapse, usually of the whole lower lobe. Nevertheless, it often clears up rapidly; this may happen in one lower lobe, while the other goes on to complete collapse in a few hours. When both lower lobes are collapsed there is usually no cardiac displacement, while if one is completely collapsed and the other merely mottled, the heart is often slightly displaced towards the side of the complete collapse. This is particularly common when the right side is the more affected, since there seems to be a general tendency for displacement to occur more readily towards this side.

When the lung becomes aerated again it sometimes fails to return at once to its normal volume (Fig. 2). Its shrunken condition is partly maintained by the mechanical conditions in the pleura, which are altered by the emphysema in the upper lobe, and partly, by the effects of inflammatory changes, which may show themselves in pleural thickening (Fig. 2), and the persistence of small areas of opacity in the hilum region, presumably due to residual consolidation.

Incidence and Distribution.

The table shows the incidence of pulmonary collapse in our series. Of the six cases which fulfilled Pasteur's description by giving marked clinical evidence of cardiac displacement, one affected the whole right lung and one the whole left lung, the others being confined to the right lower lobe. The number of patients in whom this picture occurred (6 in 226, or 2·3 per cent.) gives a fairly accurate indication of its frequency, since it represents a mean between the 0·6 per cent. and the 0·2 per cent. of Scott and Culter[30] in different institutions and that of Mastic's, Spittler, and McNamee[31] of about 7 per cent. There is a general tendency in this group for the right side to be more frequently affected than the left. There is usually a higher incidence among males than among females, but this is not revealed by our figures. Of the cases which showed no cardiac displacement clinically, 11 were bilateral, 10 involved the left lower lobe, and 9 the right lower lobe. We have never seen the upper lobes affected except when the whole lung has been involved.

The anæsthetic used or its method of administration—in these cases usually ether by the open method or from a Pinson's bomb—do not appear to bear any relationship to the frequency of pulmonary complications and, except that very young children are rarely affected, age does not appear to be a predisposing factor, but we feel certain that they are much more common when the weather conditions are adverse.

Ætiology.

Every mechanism which could probably bring about the deflation of the lungs has been evoked, with minor modifications, by different observers, and the question still remains unsettled. Pasteur, having originally recognised massive collapse in cases of post-diphtheritic paralysis,[3] felt certain that failure of the inspiratory mechanism was the essential cause of the condition, and the observation that after abdominal operation the whole diaphragm might be immobile without any abnormality in the lungs influenced him only to the extent of stating his theory as follows:—

> "A stimulus of unknown nature arising in one half of the body arrests the distending action of the corresponding half of the diaphragm to such a pitch that the compressors of the lower lobe on that side take charge, causing it to collapse in a manner already described."

Rose Bradford[4] considered that some reflex was operative and that the retraction of the chest wall was active rather than passive. At the same time he saw obstacles in the way of accepting Pasteur's views, and believed that, with the arrest of respiration in extreme expiration, the alveolar air was not sufficiently renewed and was absorbed by the blood stream.

Briscoe,[5] after an exhaustive research into the mechanism of respiration in the erect and supine postures, formulated a theory which differed from Pasteur's only in the supposition that the diaphragm and its synergic and antagonistic muscles were in abeyance because of posture and an inflammatory lesion in the region of the crura. Scrimger,[6] satisfied that respiratory paralysis could not cause massive collapse, considered that some reflex mechanism brought about a spasm of the bronchioles which was followed by absorption of the alveolar air. Scott[7] favoured a similar mechanism but preferred to believe that the reflex acted on the vessels in the bronchiole wall, which became so dilated as to obstruct the lumen. Sante,[8] who also considered that the primary cause was a reflex one, thought that it might act by causing paralysis of the bronchiole wall so that it collapsed, its walls being then held in apposition by

secretions. Elliott and Dingley[9] also failed to produce collapse of the lung by complete destruction of the respiratory mechanism, and considered that it came about because of the pure accumulation of secretion in the bronchial tree. This theory has received the support of Jackson and Lee,[10] Hearn and Clerf,[11] and several other observers on purely clinical grounds.

Massive collapse occurs in debilitated children and in people suffering from bronchitis, also after severe injury of the trunk without fracture of the ribs; in portal pyæmia [1]; after thyroidectomy [12]; in cases of pneumonia elsewhere in the lung[1 13]; after gunshot wounds in the chest, abdomen and buttocks.[4 14 15 16]

Table showing Incidence of Pulmonary Collapse.

—	Cases.	Displacement		Percentage.
		With*	Without†	
MALES.				
Operations through upper abdominal paramedian incision ..	58	0	17	29·3
Grid-iron incision	40	3	4	17·5
Hernias and lower abdominal paramedian incisions	51	0	3	6
Total	149	3	24	18·1
FEMALES.				
Upper abdominal paramedian incisions	35	1	5	17·1
Grid-iron incisions	42	2	0	4·7
Hernias and lower abdominal paramedian incisions	28	0	0	0
Nephrectomy and nephrotomy ..	7	0	1	14·3
Total	112	3	6	8
Grand total..	261	6	30	13·7

* Cases with displacement conforming to Pasteur's description.
† Cases without demonstrable displacement.

It has been recorded in a case of anterior poliomyelitis[17]; in one of infective meningitis,[18] with pulmonary tuberculosis[19] following high transverse lesions of the spinal cord[5]; and in association with obvious occlusion of the bronchi by tumours, aneurysms, and foreign bodies. It seems, therefore, at the outset that any factor such as the administration of a general anæsthetic, interference with the abdominal contents or parietes, and prolonged rest in one position, which are constantly present in post-operative cases but in the absence of each and all of which massive collapse is known to have occurred, can at most only be important as contributory to some definite cause which is common to all cases.

Although Schroeder and Green[20] reported that massive collapse followed destruction of the phrenic nerves in rabbits, all other attempts to find experimental support for the hypothesis of paralytic origin have yielded absolutely negative results. Crymbles' case (No. 15) in which, after paralysis of all the intercostal muscles and the right side of the diaphragm, the aeration of the lungs was perfectly maintained by the left diaphragm alone adds further confirmation to the experimental evidence. Indeed, all the signs of massive collapse—i.e., retraction of the chest wall and displacement of the mediastinum—testify eloquently to an increase in negative pressure on the affected side which could hardly be brought about by paralysis of the very mechanism which, when it is functioning normally, helps to maintain that pressure.

Similarly, save for an experiment in which Carlson[23] produced contractions and expansion of an extremely rudimentary lung of amphibians by stimulating the intestine and peripheral nerves, there is complete lack of corroboration for the reflex factor suggested in the theories of Bradford, Scott, Scrimger, and Sante.

We ourselves are convinced that the one determining cause is obstruction of the bronchial tree. Our opinion is endorsed by the fact that, long before collapse was recognised as a clinical entity, Mendelsohn,[24] Traube,[25] and Lictheim[26] could always produce collapse of the lung by obstructing the bronchi, and that much more recently their findings have been thoroughly substantiated by Coryllos and Birnbaum. Experimentally it is quite certain that the complete occlusion of a bronchus is always followed by collapse of the lung supplied by that bronchus, because the entrapped air is absorbed by the blood. Nor is there any lack of clinical evidence in support of this theory, for many cases have been reported in which the lung collapsed because of definite obstruction of the bronchi by the foreign body, tuberculous mass, or neoplasm. In post-operative cases Jackson and Lee, Hearn and Clerf, and Harrington[27] have been able to watch the very rapid re-expansion of the lung which followed bronchoscopic removal of thick secretions.

Predisposing Causes in Post-operative Cases.

First among these is the hypersecretion caused by the administration of a general anæsthetic, or the hypersecretion of the pulmonary or cardiac condition which contra-indicated an anæsthetic. This hypersecretion is more marked in males than in females, possibly because the respiratory passages of the former are in a constant state of mild irritation from smoking. This fact may play some part in the relatively high incidence of complications in men. Secondly, the position in which abdominal patients are usually nursed tends to the gravitation of these secretions into the bronchi of the lower lobes, which are alone affected by massive collapse except when one whole lung is involved. The third predisposing cause is interference with the expulsive mechanism either by voluntary suppression or by the excessive use of morphia. In either case the cough reflex, which has been aptly called by Jackson "the watch dog of the lungs," ceases to be excited and secretions accumulate. An incision in the upper part of the abdomen undoubtedly causes more voluntary suppression than one lower down, and this probably accounts for the high incidence of complications after upper incisions. The fact that women are costal rather than abdominal breathers and probably use the costal musculature in expulsion may be a still further explanation of the smaller incidence in the female.

An important question is how much deflation can be brought about by posture and by voluntary inhibition of the respiratory movements. Briscoe, and more recently his pupil,[29] Livingstone, have demonstrated that the supine position is associated with a very marked reduction in the vital capacity of the chest, an alteration which, of course, occurs in all patients recovering from operations.

When massive collapse follows a grid-iron incision or one in the lower part of the abdomen, the initial obstruction not infrequently affects the larger bronchi and, because of the small amount of deflation already present, there is a considerable amount of volume to be made up when the air is absorbed, so that the cardiac displacement tends to be extreme. With upper abdominal incisions obstructions of the larger bronchi occur with equal frequency, but because of the excessive deflation which accompanies these incisions the minute bronchioles very readily become obstructed. This causes a diffuse lobular collapse which gives to the X ray picture of the affected lobe a mottled appearance. It is possible that a lobar collapse would result from the coalescence of these lobular areas, but this is more probably due to a gradual filling of the lower lobe bronchi with the secretions which accumulate when there is no longer a head of air to expel them nor tidal air to evaporate them. Once the lower lobe is completely collapsed the upper lobe can fill the diminished pleural space without causing any displacement of the mediastinum or heart.

This theory depends to a certain extent on the results of certain attempts which we have made at prophylactic treatment, to which we shall refer to later.

Clinical Features.

The symptoms associated with the onset of massive collapse vary very widely, and cases may be described according to their severity as fulminant, moderate, or latent.

In *fulminant* or acute cases the onset is accompanied by a "collapse attack" which, although rare, is striking enough to deserve a description. A patient who may seem fairly well suddenly becomes so cyanosed, distressed, and dyspnœic that death appears imminent. At the same time his temperature and pulse-rate become very high and diaphoresis is generally profuse. At the zenith of the attack the patient adopts a very characteristic attitude, curving his body and inclining his head towards the affected side. A collapse attack does not necessarily indicate that an unusually large area is involved. We have seen it both with and without mediastinal displacement, and the subsequent course does not differ in any way from that of others.

In *moderate* cases the dyspnœa and distress are very variable but always fall far short of the urgency of a collapse attack. The lips are usually cyanosed, the temperature about 100° F., and the pulse-rate about 120. Diaphoresis is usually present.

The *latent* cases, however, show no symptoms at all, and the explanation of a temperature of 100° F. and a pulse-rate of 120 associated with slight cyanosis must always be sought at the bases of the lung.

In his review of the cases in the literature of 1927, Scott found that in 50 per cent. the onset occurred within 24 hours of operation, in 20 per cent. after 48 hours, and the remaining 30 per cent. in the intervening period. It is fairly certain, however, that in the cases described as coming on after the lapse of 48 hours it is the recognition and not the collapse that is delayed. When the access of air to the alveolar tissue of the lung is interrupted the carbon dioxide in the entrapped air is absorbed very rapidly, and is immediately followed by the oxygen. The nitrogen, however, is not fully removed for 24 hours, so that when the lung is completely airless the obstruction has already been in existence for many hours, and in some cases it seems to become established even before the effects of the anæsthetic have completely worn off.

If a typical case of massive collapse of the lungs—say that of the right lower lobe with moderate symptoms—is seen 14 hours after operation, the temperature and pulse-rate are rising, the respirations are shallow and difficult but only slightly increased in rate, and the skin is moist. The patient may want to cough, but refrains as much as possible because of the pain. At this stage the lower part of the chest is moving very little, if at all, with respiration and the immobility is especially well marked on the right side. The heart is either normally placed or displaced to the right, or else no estimate can be formed of its position. The only physical signs in front are coarse râles heard everywhere with inspiration, but the percussion note in the back, although not absolutely dull, has lost its resonance to a degree greater than that caused by mere postural deflation. The breath sounds can be heard only on deep inspiration, and the vocal fremitus and resonance are much diminished. Moist sounds are conspicuous all over the lungs and X ray examination reveals the mottled appearance of lobular collapse in the affected lobe. Some 20 hours later the acute symptoms have almost completely subsided, but the cyanosis remains and the temperature and pulse are nearing their maximum, which, unless the condition has completely resolved, they attain about 48 hours after the operation. At this time all moist sounds have disappeared from the normal area, but the retraction, immobility, and cardiac displacement are much more marked, especially when the patient lies flat on his back. The physical signs of fully developed massive collapse are present at the right base posteriorly over a small triangle which is bounded roughly by a line passing from the sixth dorsal spine to the point where the posterior axillary fold intersects the base line.

These physical signs present an ensemble which is well expressed in the term "dead lung." The percussion note is as dull as that caused by fluid and has a very similar feel, the breath sounds are entirely absent or are heard only on the deepest inspiration, and the vocal fremitus and resonance are greatly diminished. On the fourth or fifth day the temperature and pulse-rate may return to normal, and between the third and sixth days the cough, which gradually becomes more confident, produces large quantities of thick, green, muco-purulent sputum which contains many polymorphonuclear leucocytes and presents a very variable flora. Pneumococci, *Micrococcus catarrhalis*, and *Bacillus influenzæ* were the most constant in our series. The physical signs, however, are unaltered until some time after the cough has expelled the obstructing secretions, and then they take on protean characters. Occasionally the percussion note becomes resonant at once and the breath sounds vesicular but accompanied by showers of inspiratory crepitation; loud tubular breath sounds may appear with increased vocal fremitus, bronchophony and pectoriloquy, and any intermediate condition may be discovered. Not uncommonly the physical signs have a patchy distribution, presenting one set of characteristics in one place and another elsewhere. These signs may persist for many days after the obstruction is removed and the patient appears perfectly well, but the rapidity with which the lung becomes reaerated clinically and radiologically bears a very definite relationship to the duration of the obstruction as judged by the physical signs. The obstruction is usually removed before the fifth day, after which the signs of massive collapse give place to those of its complications.

Cases 1 and 2 of our series show the most rapid recovery possible: reinflation after early removal of the obstruction brought about by turning the patient very violently on to his affected side. The sputum of Case 2 gave at one stage definite evidence of the breaking-down of the lung parenchyma, and we believe that if postural drainage had not been persistently maintained this case might have had a much less favourable issue. The majority of cases, however, ran an intermediate course.

Complications and Mortality.

Collapse, although itself of interest rather than import, may become a matter of gravity because of the complications to which the collapsed lung is liable. Experimentally these inflammatory complications have been studied in dogs by Coryllos and Birnbaum. Their general conclusion was that some degree of inflammatory change seemed inevitable if the obstruction remained unrelieved for 72 hours. After this time the most frequent complication was diffuse suppuration—a real purulent pulmonitis which evidently originated from the bronchi. Less often they found a hæmorrhagic pulmonitis resembling that of influenza, or a typical broncho-pneumonia, but never lobar pneumonia. It seems likely that the violent infective changes in dogs are related to the presence of *Bacillus coli* in the mouth, but in man the muco-purulent sputum which is nearly always present in the later stages suggests that some infection does occur, and the physical signs indicate changes in the lung varying from mere congestion to broncho-pneumonia. Scott, Lee, Pasteur, Elwyn[32] and Hirschbroeck[33] all report cases in which the secondary broncho-pneumonic condition was accompanied by severe toxæmia and ended fatally, but this is rare. A thick fibrinous exudate, however, is not uncommonly found over the collapsed area post mortem. This may be secondary to the inflammatory conditions, but in the two patients in whom it came under our notice it originated from the rupture of a subpleural abscess which was in communication with the bronchial tree.

Massive collapse and its complications are probably not attended with any estimable mortality. The cases in which the resulting broncho-pneumonia proved fatal form a very small percentage, and

although four of the cases in our series came to autopsy there was always some cause of death other than the pulmonary condition.

Pathology.

It seems that a true uncomplicated case has never yet come to autopsy. Microscopically the collapsed lobe is usually found as a shrunken mass crowded up against the vertebral column by the emphysematous lobe which is not affected. It is purple-red, firm, and quite airless, so that it sinks in water, and the unaffected lungs are usually emphysematous. In the areas where the inflammatory changes are not so severe as to overshadow everything else, the alveolar spaces are greatly diminished in size and the cells, although their outline remains clear, become crowded together. Because of this approximation of the alveolar walls the lung assumes such an extremely vascular appearance that Jackson and Lee speak of an angiomatous condition. The most common indication of the inflammatory changes is the filling of the smaller bronchi by fibro-purulent plugs and the presence around them of areas which are indistinguishable from broncho-pneumonia. Differences occur in the extent of these changes, but no other inflammatory condition is described.

Four of the patients in our series died and were submitted to post-mortem examination; none of them had shown cardiac displacement before death.

In the first death was due to a large empyema on the side of the massive collapse, originating from the retroperitoneal spread of an appendix abscess. The second died, seven days after the establishment of massive collapse, from streptococcal peritonitis; the right lower lobe was shrunken, firm, and airless with pus in all the small bronchi. In the third death from peritonitis occurred seven weeks after operation; during most of this time the physical signs had suggested an effusion at the left base. The lower lobe on the left side and the lower part of the upper lobe were covered with a thick fibrinous exudate, under which the lower lobe was shrunken and airless to a degree far in excess of that which could be caused by mechanical pressure. This exudate was caused by perforation of the collapsed lung over an abscess cavity about as large as a walnut in the lower part; the cavity was proved by the injection of lipiodol to be in communication with the terminal bronchus. The fourth patient died, six weeks after operation, from infective endocarditis which apparently followed an infection of the throat during convalescence. Macroscopically the appearances were almost identical with those in the previous case, the lower lobe on the left side being contracted to less than one half of the original size and covered with a layer of fibrin resulting from the rupture of a bronchiectatic abscess three days before death.

The sections in these cases had very little in common. In the second case, although the collapse had been present for only seven days, and in the third, where it had persisted for seven weeks, the inflammatory changes were well marked and, but for the macroscopic evidence of collapse, it would have been difficult to differentiate the condition from broncho-pneumonia. There were, however, areas in which the angiomatous condition described by Jackson and Lee was vividly portrayed, and others in which the alveoli were occupied by fibrinous exudate which contained practically no cells and presented an appearance strikingly similar to the descriptions given by Corylios and Birnbaum of one type of pulmonary complications of bronchial obstruction. The sections of the fourth case, although the collapse had persisted for six weeks, showed very much less inflammatory reaction, apart from the ruptured bronchiectatic abscess. There were a few patches resembling broncho-pneumonia and others in which there was a fibrinous exudate only, but the general appearances were those of simple massive collapse with approximation of the alveolar walls and dilatation of the capillaries.

It seems, therefore, that, although the microscopic appearance of uncomplicated massive collapse is fairly characteristic, it may be completely overshadowed by secondary inflammatory changes, and that in these circumstances due attention must be given to the macroscopic shrinkage and to the absolute airlessness of the affected lung.

Diagnosis.

Pneumonia may be justly suspected in most cases when bronchial breathing and pectoriloquy are present, but when these signs occur in a patient who shows nothing else to suggest an inflammatory lesion of the lungs, the terminal stages of massive collapse must be considered. There may be little cough and expectoration, no more marked acceleration of the pulse and respiration-rate than is comparable with the general condition of the patient, and no fever. Further evidence against pneumonia is provided by the absence of any alteration in the physical signs from day to day, the often complete lack of moist sounds, and the presence of a large area of physical signs contrasting strongly with the complete absence of toxicity. Pneumonia is a rare complication of abdominal operations. We have only seen one case of hilum pneumonia among our patients, and the gravity of the illness showed at once that the complication was more serious than massive collapse. Evidence is rapidly accumulating to support the opinion, originally expressed by Pasteur, that when after abdominal operation physical signs at the bases suggest pneumonia, the chances are all in favour of massive collapse.

Treatment.

The treatment of these complications may be symptomatic or curative. Symptomatic treatment is only necessary in the grave collapse attacks, when probably all that is required is a small dose of morphia. Farris and others, believing that the chief cause of distress in these cases is cardiac and mediastinal displacement, have advised the induction of an artificial pneumothorax on the affected side. As these attacks are never fatal and the baneful symptoms usually subside in 24 hours, this must be unnecessary and harmful.

The immediate object of all treatment must be the removal of the obstructing plug from the bronchus. Jackson and Lee, Hearn and Clerf, Tucker[3,4] and Harrington, have all accomplished this successfully by bronchoscopy and have recommended it for all cases without delay. Even in the hands of experts bronchoscopy without anæsthesia causes a degree of shock and exhaustion which cannot be contemplated without misgiving, while the administration of another anæsthetic for bronchoscopy is not rational.

Sante, although not accepting the obstruction theory of massive collapse, has shown that re-expansion can be brought about by turning the patient rapidly on to his unaffected side and making him cough. This method undoubtedly acts by dislodging the obstructing mucus, and in our experience has always been satisfactory. It is, however, necessarily somewhat violent, and does not always seem justifiable in the earliest stages, when it is most efficacious. Its usefulness is limited to those cases in which the obstruction is in the larger tubes.

We are convinced that the treatment of massive collapse should be primarily prophylactic and should consist essentially of postural drainage of the bronchial tree. We have treated by this method 47 male patients, who were not selected in any way except that no emergency condition was included. All pillows were removed and the foot of the bed was raised 20 inches above the head for 24 hours after operation. None of these patients had massive collapse while this position was maintained. At the end of 24 hours radiograms always showed that the lower lobes were excellently aerated as compared with the apices, but at varying intervals after return to the horizontal; several of the patients developed mottling of the lower lobe, which in two instances went on to massive collapse without cardiac displacement. We are aware that this position is extremely unorthodox, but we have never seen anything but good follow its employment. Occasionally there is headache, but the effects on the cardiac and respiratory systems, as indicated by the pulse-rate and respirations, are always beneficial. The method certainly reduced the incidence of massive collapse and might have reduced it still further if the posture had been maintained longer.

When postural treatment cannot be attempted morphia should be avoided as far as possible, as its excessive use certainly increases the liability of

massive collapse. Attempts should be made to increase the aeration of the lungs by forced breathing or the administration of carbon dioxide to produce hyperpnœa, although we are somewhat sceptical of the value of this latter treatment.

Conclusions and Summary.

1. 13·7 per cent. of all abdominal operations are followed by pulmonary complications, males being more affected than females, and upper abdominal operations more than lower.

2. Pneumonia occurring after abdominal operation is extremely rare and all these complications consist of massive collapse of the lungs, which may or may not be accompanied by the cardiac displacement on which Pasteur laid such stress.

3. Massive collapse is due to obstruction of the lumen of the bronchi, followed by absorption of the contained air by the blood stream. This obstruction most often affects the larger tubes, but when the incision has been in the upper abdomen the deflation of the lower lobe is so great that the bronchioles may become primarily obstructed.

4. About one out of every six of these cases exhibits cardiac displacement, depending on the degree of deflation of the lung before the obstruction occurred.

5. The predisposing causes are the catarrh which follows an anæsthetic, the position in which the patients are nursed, and the inhibition of the cough reflex by pain or the excessive use of morphia.

6. The clinical features, complications, pathology and diagnosis of massive collapse are described.

7. Certain measures of treatment are advised, with special reference to postural drainage.

We are indebted to the honorary staff of the Ancoats Hospital whose cases form the material of this investigation; and to Mr. P. G. McEvedy, F.R.C.S., Dr. E. W. Twining, and Dr. A. E. Barclay for much helpful advice and criticism of our efforts. For the bacteriological and pathological investigations our thanks are due to Dr. Mary Leslie Smith.

[*Note.*—A complete table of the cases investigated has been prepared and may be inspected on application to the authors.

References.

1. Pasteur, William: Bradshaw Lecture, THE LANCET, 1908, ii., 1351.
2. Twining, E. W.: Personal communication.
3. Clinical Soc. Transactions, London, 1895, iii., 28.
4. Bradford, J. R.: Brit. Med. Jour., 1917, ii., 141; Quart. Jour. Med., 1918–19, xii., 127.
5. Briscoe, J. C.: THE LANCET, 1914, i., 1502; Quart. Jour. Med., 1919–20, xiii., 293.
6. Scrimger, F. A. C.: Surg., Gynec., Obst., 1921, xxxii., 486.
7. Scott, W. J. M.: Arch. Surg., 1925, x., 73.
8. Sante, L. R.: Radiology, 1927, viii., 1; Jour. Amer. Med. Assoc., 1927, lxxxviii., 1539; Ann. Surg., 1927, lxxxv., 608.
9. Elliott, T. R., and Dingley, L. A.: THE LANCET, 1914, i., 1305.
10. Jackson, C., and Lee, W. E.: Ann. Surg., 1925, lxxxii., 364.
11. Hearn, W. P., and Clerf, L. H.: Ann. Surg., 1927, lxxxv., 54.
12. Ball, R. P.: Arch. Pathology, 1928, v., 760.
13. Lee, W. E.: Ann. Surg., 1924, lxxix., 506.
14. Curl, S. W.: Quart. Jour. Med., 1918–19, xii.
15. Crymble, P. T.: Brit. Jour. Surg., 1917–18, v., 363.
16. Solteau, A. B., and Alexander, T. B.: Quart. Jour. Med., 1916–17, x., 259.
17. Regan, J. C.: THE LANCET, 1924, ii., 1222.
18. Kletz, N.: THE LANCET, 1927, i., 179.
19. Farris, H. A.: Canad. Med. Assoc. Jour., 1925, xv., 808.
20. Schroeder, W. E., and Green, F. R.: Ann. Jour. Med. Sci., 1902, cxxiii., 196.
21. Coryllos, P. N., and Birnbaum, G. L.: Arch. Surg., 1928, xvi., 501.
22. Grailey and Hewitt: Reynolds' System of Medicine, 1871, p. 1865.
23. Carlson, H. J., and Ruckhard, A. B.: Ann. Jour. Physiol., 1921, lv., 13, 31, 56.
24. Mendlesohn: Quoted by Lord, Diseases of Bronchi, Lung, and Pleura, 1915.
25. Traube, L.: Beitr. z. exper. Path. und Physiol., 1864, i., 65.
26. Lictheim, L.: Arch. f. exper. Path. und Pharm., 1879, x., 54.
27. Harrington, S.: Ann. Surg., 1927, lxxxv., 152.
28. Miller, C.: The Practitioner, 1928, cx., 38.
29. Livingstone, J. L.: THE LANCET, 1928, i., 754.
30. Scott, W. J. M., and Cutler, E. C.: Jour. Amer. Med. Assoc., 1928, xc., 1759.
31. Mastics, E. A., Spittler, F. A., and McNamee, E. P.: Arch. Surg., 1927, xv., 155.
32. Elwyn, H.: Jour. Amer. Med. Assoc., 1922, lxxix., 2154.
33. Hirschboeck, F. J.: Amer. Jour. Med. Sci., 1922, clxiv., 268.
34. Tucker, G.: Surg., Gynec., and Obst., 1926, xlii., 743.

OBSERVATIONS ON THE RADIUM TREATMENT OF VESICAL CARCINOMA.*

BY A. CLIFFORD MORSON, O.B.E., F.R.C.S. ENG.,
SURGEON TO ST. PETER'S HOSPITAL FOR URINARY DISEASES, LONDON.

(*With Illustrative Plate.*)

FIFTEEN years ago the study of radium therapy in this country was in its infancy, the medical profession, with few exceptions, having no knowledge of the results which had already been obtained on the Continent. Even America, so responsive to all that is new in therapeutics, had likewise lagged behind. To N. S. Finzi must be given the credit of being the first in Great Britain to use radium in any large quantity for the treatment of malignant disease. The lack of interest shown by the hospital authorities was remarkable, and it was not until the news of the disappearance of tumours, when exposed to radium irradiation, had filtered through to the general public that they were stirred from their lethargy. Then came the reaction and the demand for the rare and expensive element became an urgent problem. There followed the usual attempts of imposters to sell metal tubes which were stated to contain radium. I recall two instances, one in which a tube supposed to contain 20 mg. of the salt proved to be empty, and the other, in which the brother of a medical man, suffering from carcinoma of the stomach, had been persuaded to take, by the mouth, radium in solution, at the price of 10*s.* 6*d.* per bottle. How many bottles he purchased I know not, but the one that came into my possession contained only a coloured fluid.

My acquaintance, in 1913, with certain workers in Paris, such as Degrais, Domenici, and Becquerel, caused me to make a special study of the changes which occur in malignant tumours on exposure to radium. The findings from this investigation were incorporated in a paper read before the Section of Pathology of the Royal Society of Medicine in the spring of 1914. They entirely confirmed the work of Domenici and may be summarised as follows:—

1. The greatest effect upon a tumour when exposed to irradiation is produced by burying the tube containing radium in its substance.

2. Unless the malignant cell is destroyed at the first exposure its power of resistance is increased with each succeeding one.

3. Different types of malignant cells differ in their degrees of sensibility to irradiation.

4. The nucleus is the first part of the malignant cell to show changes.

5. The action of radium on the connective tissue cells is similar to the attempt of nature to arrest the growth of cancer through overgrowth of fibrous tissue.

The most important advance since this date in our knowledge of the changes in cells, both normal and malignant, is that made by Dr. Ronald Canti with his cinematograph. He has demonstrated that the fibroblast is not destroyed by a comparatively large dose of radium, whereas certain other normal cells are. This is a very valuable observation when we consider the relationship of these normal cells to the inhibition of the growth of malignant disease in the human body. The clinician well knows the atrophic scirrhus, and the pathologist is well aware why it is atrophic. The overgrowth of fibrous tissue in and around the tumour has terminated once and for all the activities of these malignant cells.

A. H. Drew, of the Imperial Cancer Research Fund, carried out a number of experiments upon the growth of cells outside the body, and demonstrated that a malignant tumour will take on disorderly growth in the absence of fibroblasts. If the latter cells be added to the culture of carcinomatous tissue, the spread of the mass is immediately restrained. In other words, the fibroblast is the constable of the cancer cell. The data thus collected must have an

* Being a paper read before the Section of Urology of the Royal Society of Medicine, May 24th, 1928.

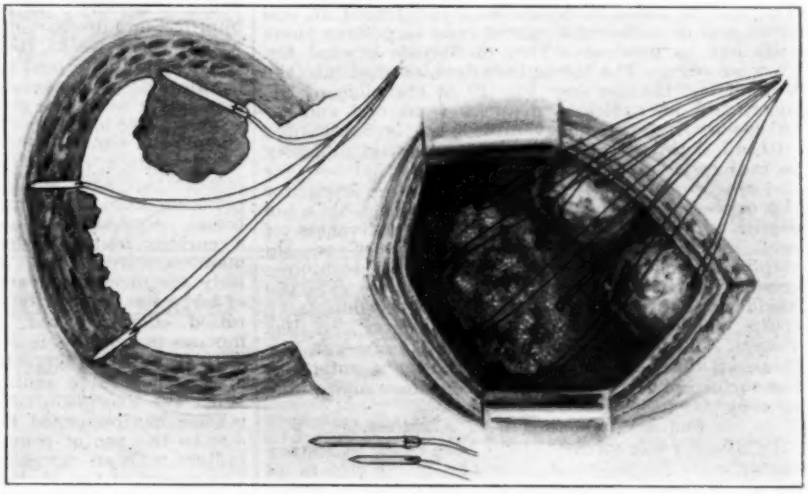
important bearing on our endeavours to eradicate cancer with the aid of radium. Even though the malignant mass cannot be caused to disappear—the ideal at which all of us aim—we know now that it is possible to reduce it to impotence by bringing the fibroblast to our aid. Radium not only fails to have a lethal effect on this connective tissue cell but, under certain conditions, seems to stimulate its reproductive powers.

It is with these facts before me that I have elaborated a technique for the radium treatment of vesical carcinoma. To place one or more tubes in a haphazard way into a portion of a bladder growth, irrespective of its anatomical position and its degree of activity, is a common mistake which has brought discredit on the value of radium as a therapeutic agent. Its application cannot be carried out by any rule of thumb. The growth must be carefully defined, not only from within the bladder but also from without. The relationship of adjacent structures, such as the ureter, rectum, and large blood-vessels, should be noted and, finally, an attempt may have to be made to sweep away that most serious of all cancer complications — sepsis — before treatment is commenced. Care has to be taken that the ureter is not constricted by the overgrowth of fibrous tissue resulting from excessive irradiation in its vicinity. The same applies to the iliac vessels, in which also, on account of the sensitiveness of the lining endothelium, thrombosis is a possible complication. I have seen death take place three days after the application of a tube containing 92 mg. to within 5 mm. of the inferior vena cava. Thrombosis had extended along a considerable part of this vessel.

Operative Technique.

Access to the tumour is obtained either through the urethra or by a suprapubic cystotomy. For the transurethral application of radium an operating cystoscope is required to allow of the accurate insertion of the container into the substance of the growth. The cystoscope is then withdrawn and the radium, attached by a holder, is left in position for as long as the surgeon considers necessary. Obviously treatment with the aid of the cystoscope has its limitations, although some authorities insist that access through the urethra is the route of choice. The treatment of any bladder disease with the help of the cystoscope requires not only a well-developed visual sense, but also plenty of common sense. Is it conceivable that even the expert cystoscopist can determine accurately the extent of a cancer? When hæmorrhage or infection is severe, he will get but a glimpse of the tumour, and, moreover, the size of a tumour as seen on the mucous surface of the bladder is no guide to its depth and the width of invasion of the muscle layers. The only advantages of transurethral application are that the patient requires no anæsthetic and no incision through the bladder wall. As already stated, it is essential to define accurately the limits of the growth, and this can only be done by a suprapubic cystotomy. Under anæsthesia, either general or regional, a catheter is passed by the assistant and the bladder is washed out with an antiseptic fluid—it is my custom to use 1 in 8000 oxycyanide of mercury—and then distended. The catheter is withdrawn and the urethra compressed by a penile clamp. With the patient in the Trendelenburg position, the bladder wall is exposed, emptied of its fluid contents by trochar and cannula, incised, and retractors inserted. This allows of a thorough inspection by sight and touch of the mucous surface of the tumour. It is important to note whether the growth is of the ulcerative type or that known as the papillary carcinoma, for the method of application of the radium tubes is different in the two cases. The retractors must now be withdrawn and the fingers of one hand passed between the outside of the bladder wall and the bony pelvis, the fingers of the other hand being in contact with the lesion on its mucous surface. Such bimanual palpation will indicate the exact position of the tumour in relation to ureter, rectum, iliac vessels, and obturator nerve,

FIG. 1.



Sketches to illustrate the methods of inserting radium tubes in (*a*) papillary carcinoma; (*b*) ulcerative variety of carcinoma.

also the extent of infiltration of the vesical musculature and the pelvic cellular tissue. Having determined thus the precise anatomy of the cancer and its clinical variety, careful consideration must be given to the position of insertion of each tube of radium.

Before discussing this part of the technique it is necessary to refer to the quantity of radium and the containers which have been placed at the disposal of the staff of St. Peter's Hospital by the British Empire Cancer Campaign. The total amount of radium is 200 mg. This is put up in platinum tubes, each 0·5 mm. thick, and varying in size according to the contents. There are ten tubes containing 10 mg., one tube of 50 mg., and two tubes of 25 mg. All the alpha rays, and the large majority of the beta, are cut off by the 0·5 mm. of platinum, and for all practical purposes we use nothing but gamma radiation. The radium is kept in a safe, each tube resting in a slot drilled in a mass of lead. One of the disadvantages in the use of radium in clinical research is the inability to alter the distribution of the element in the containers without considerable expense. There are times when one desires to use tubes, say, containing 5 mg. each or even less. To make such an alteration may cost £60 or £70.

Insertion of Radium Tubes in Bladder Carcinoma.

The papillary carcinoma, the cauliflower type of growth, has a pedicle which may be thick or thin, and which consists of malignant cells and vessels going to supply the main mass with blood. In such a case, insert the tubes—the amount depending on the size of the tumour—right through the pedicle, as shown in Fig. 1. The tube is left in position

for 24 hours, thus ensuring destruction of the main blood-vessels and setting up an extensive fibrosis in the wall of the bladder adjacent to the tube. The latter is pushed into position by means of a special holder. The free end is threaded with silkworm-gut and the latter brought out of the bladder through the suprapubic opening and stitched to the skin. The anterior bladder wall is sewn up, except for a small opening to admit a drain and allow the silkworm-gut and radium tube to be removed without difficulty at the end of 24 hours. The drain is left in for another 24 hours.

For the ulcerative type of carcinoma the technique is modified in two respects. The centre of the tumour consists of old cells, some of which are undergoing degeneration. It is unnecessary to attack these cells, for they are suffering from senility and are therefore harmless. The cells at the margin of the growth, on the other hand, are young and in active division. The radium must therefore be concentrated at this point and in sufficient dose not only to destroy these cells but to produce a ring of fibrosis beyond the growing edge. The tubes, then, are inserted into the wall of the bladder (see Fig. 2) at the edge of the ulcer, and at sufficient distance from one another to ensure that the intervening space is bombarded with a lethal dose. Herein lies our greatest difficulty in radium therapy. That which is a lethal dose for the cancer of one patient is not necessarily lethal for the cancer of another. Until we are able by some means to determine the degree of sensitiveness of each individual's cells treatment must remain empirical. The further modification in technique consists in attacking the tumour from outside the bladder. Tubes must be buried in the cellulo-fatty tissue which is situated around the ureter and iliac vessels. They are threaded with silkworm-gut like those within the bladder, and are brought out on to the surface of the skin through the same suprapubic opening.

Radium Combined with Fixatives.

Of recent years attempts have been made to destroy cancer cells by injection into the blood stream of certain chemical substances, more particularly heavy metals in colloidal solution, colloidal selenium, and colloidal lead. So toxic, however, are these solutions that, with experience of them, it becomes increasingly difficult to believe that, to use a racing expression, they will "stay the course." On the other hand, it is conceivable that if used as activators in conjunction with radium—in other words, for the purpose of giving off secondary radiations—they may play an important part in a sustained attack upon a malignant tumour. Mottram, of the Radium Institute, has already published the results of experiments conducted with lead on these lines. If a substance is used which is fixed in the malignant cell and which, unlike lead, is non-toxic, our chances of success are improved. I believe it was Wassermann who first demonstrated that the coal-tar product eosin could become fixed in a carcinoma cell. A short time ago I was much impressed with the results of treatment of a case of carcinoma of the male breast by the injection of sodium fluorescin, followed by an X ray exposure. The investigator was Dr. Monckton Copeman. Fluorescin is a derivative of eosin, is non-toxic, is fixed in the carcinoma cell, and will give off secondary radiations. Profiting by the experience of Dr. Copeman, I injected a malignant growth of the bladder with a 2 per cent. solution of sodium fluorescin and at the same time inserted a number of tubes of radium. The result has been encouraging. It is only one case, and is therefore, from a scientific standpoint, of little importance unless the experiments are repeated over and over again.

Prognosis.

It is a striking fact, confirmed by numerous observers, that bad results are to be expected from radium irradiation where sepsis has intervened upon a malignant growth. I know of no exception to this rule. It is worse than useless in the case of vesical carcinoma. Every effort must be made with the aid of lavage to reduce the infection to a minimum. In a foul-smelling cystitis there is no better disinfectant than a weak solution of sanitas, ʒi. to the pint. Prognosis is far from hopeful, even when some success attends the attempts to eradicate sepsis.

What, then, can be regarded as a favourable factor, apart from the size of the tumour and the type of cell? It is hæmorrhage. Patients utterly exhausted from excessive bleeding and in imminent danger of losing their lives from this complication alone may be restored to a state of health which allows a breathing space for further efforts to control the disease. In severely bleeding growths, if the dosage and technique advocated in this paper be adopted—namely, a large quantity of radium with a short exposure—hæmorrhage will cease within 24 hours of the commencement of irradiation and in some cases within four hours; the suprapubic wound will heal rapidly; the general condition will steadily improve, and discharge from hospital may be expected within three weeks from the onset of treatment.

This may be termed the immediate result of radium irradiation. The remote results are as follows. In favourable cases the general condition of the patient is good, as judged by the increase in weight. Even though the urine may be quite clear, there is frequency of micturition, due to radium reaction in the mucous membrane, and slight discomfort on defæcation resulting from irritation of the rectal mucous membrane. Cystoscopy shows, at the end of three months, a curious bullous œdema of the area of mucous membrane irradiated. In other cases, more particularly the ulcerating variety and when the tumour is of large size, a mass of dead growth surrounded by a raised edge, covered by what looks like normal mucous membrane, is observed.

It is common knowledge that healing of tissues after exposure to radium irradiation may be slow. With the exception of a case treated in 1925, the reverse has happened in my cases. This is entirely due to the use of comparatively large quantities of radium with an exposure of not more than 24 hours. The report of the Medical Research Council for 1926 on the medical uses of radium records the result of the treatment of rectal cancer by 20–48 mg. of the element, left in situ for periods up to 10 days. Delay in the healing of the wounds was a noticeable feature in all cases. There is also, I submit, a grave danger of sloughing of normal tissues.

Attention has been drawn, in my article published in the *British Journal of Radiology*, to the method of dealing with the ureter, when constricted by growth, by transplanting it into a growth-free part of the bladder. With further experience I wonder whether this is necessary, provided no radium fibrosis is produced around the duct. A reference to the notes of my cases tends to support the view that relief of pressure will probably result from the absorption of dead carcinomatous tissue. Stress must be laid upon the experimental nature of the work which has been undertaken on cases treated at St. Peter's Hospital. The radium has been applied for the most part to patients already exhausted by complications and the failures of operations or diathermy. The disease has come under treatment in the inoperable stage, and in one or two cases the cancerous cachexia has been profound.

Of 12 cases treated since 1925, four have been complete failures. Of the remaining eight, one was first treated 2½ years ago. He was a man of 64 with a large ulcerative growth of the right lateral wall, spreading to the internal meatus. Repeated applications of diathermy merely seemed to increase the hæmorrhage. On admission he was collapsed from the excessive bleeding and blood transfusion had to be resorted to. The bladder was then opened and half the growth excised, the remainder being surrounded by tubes of 10 mg. of radium left in situ for 24 hours. The patient was discharged 21 days later with a healed wound and passing a clear urine. For two years he enjoyed good health, but in January of this year there was a recurrence of hæmorrhage. Cystoscopy showed a growth involving trigone and both lateral walls. 110 mg. were implanted into the growth for 24 hours, and he was discharged 21 days

later with the wound healed but with cloudy urine. In March, 1928, cystoscopy showed dead growth on the right lateral wall and right half of the base of the bladder, but no hæmaturia.

Three cases treated about a year ago are alive and in fair health. One had been attending the genito-urinary department of a general hospital for three years on account of hæmorrhage, and had had numerous applications of diathermy. The growth involved the whole of the left lateral wall, including the left ureteric orifice. 200 mg. of radium were inserted for 24 hours, and he was discharged 22 days after operation with the wound healed and clear urine. This patient has put on more than one stone in weight. On March 31st cystoscopy showed a slough on the left lateral wall, with rolled-over edge. The bladder capacity is normal. There has been no hæmaturia but the urine contains a small quantity of pus.

The second case is a partial failure, in that the patient has suffered severely from radium reaction. There was much hæmaturia on admission which diathermy failed to control. 110 mg. of radium were inserted into the growth, which occupied the whole of the left lateral wall and was covered by slough and phosphates. The tubes were removed at the end of 24 hours. In March, 1928, cystoscopy showed no visible growth, but cystitis was present and the bladder was very irritable to distension. There was also rectal tenesmus and tenderness of the mucous membrane on digital examination.

The third case was a man of 63, who had been operated upon previously and treated by open diathermy for a growth of the left lateral wall. When the bladder was opened for the second time on account of hæmorrhage it was found that there was an ulcerative growth involving the left half of the internal urinary meatus and the major part of the left lateral wall. 180 mg. of radium were implanted around the margins of the growth and left in for 24 hours. The patient was discharged from hospital 21 days after operation, with the wound healed and slightly clouded urine, but no blood. On April 28th I cystoscoped this patient and found no growth, but bullous œdema of the left half of the internal meatus. His general condition was good and his weight had increased. The urine contained a small quantity of pus. He complained of irritation in the anus.

The remaining cases, four in number, have been treated within the past six months. The disease in all was in an advanced stage. Two of them have had their bladders opened at least twice for open diathermy. When I inserted radium tubes the prominent symptom had been continuous hæmorrhage. Within 24 hours in each case hæmorrhage ceased. The four of them, one a woman, are alive and in fair health.

Conclusion.

As a result of observations extending over a number of years, certain definite statements can be made. Firstly, vesical carcinoma, in our present state of knowledge, cannot be cured by radium irradiation, but a shrinkage of the tumour, even to apparent disappearance, may be expected. Secondly, severe hæmorrhage can be controlled, and therefore an improvement in the general state of health will follow.

References.

Barringer, B. S.: Carcinoma of Prostrate and Bladder, New Eng. Jour. Med., 1928, cxcviii., 117.
Medical Research Council Special Report No. 116.
Morson, C.: Changes which Occur in Malignant Tumours on Exposure to the Gamma Rays of Radium, Proc. Roy. Soc. Med., 1914, vii. (Path. Sec.), 97. Treatment of Malignant Disease by Radium Irradiation, Brit. Jour. Surg., 1915, ii., p. 354. Brit. Jour. Radiol., 1927, xxxii., 309.

Clinical and Laboratory Notes.

TETANUS TREATED BY INTRACISTERNAL INJECTION OF ANTITETANIC SERUM.

By Stanley E. Denyer, C.M.G., M.D. Camb., F.R.C.S. Eng., M.R.C.P. Lond.,

SENIOR PHYSICIAN TO THE HULL ROYAL INFIRMARY; LATE EXAMINER IN ANATOMY IN THE UNIVERSITY OF CAMBRIDGE.

In 1921 I published in The Lancet (i., 1356) a case of tetanus treated with large doses of antitetanic serum. That case was not more severe, but the period of treatment was longer than in the one here recorded. The serum in the earlier case was given intrathecally. In the present case, owing to lack of progress during intrathecal administration, the intracisternal route was used on the fifth day with almost immediate lessening of the rigidity of the jaws. The total quantity of serum used was less, being 192,000 units, as against 236,500 units given to the first patient.

A horseman, aged 21, a well-built, healthy looking man, was admitted to Hull Royal Infirmary on Feb. 22nd for stiffness of the jaws. On Feb. 19th he had noticed his jaws were stiff and thought he had neuralgia. On admission the masseter muscles were firmly contracted and he could only open his mouth a little, the greatest distance between the incisors being 0·75 cm. He complained of stiffness of the jaws, the back muscles (especially between the shoulders), both legs, especially the left, and the abdominal muscles, which were so rigid that the movements of the diaphragm were impeded. This may have been due partly to the rigidity of the diaphragm itself, as later some bronchitis developed. The source of infection was evidently a sore on the left heel, which was red and tender; the left leg was much stiffer than the right. He had other cuts on his hands and legs. These were all treated with tinctura iodi and other antiseptics. The pulse-rate was 100, the temperature 99° F., and the blood pressure 82/115. Heart, lungs, and urine showed nothing abnormal. The knee-jerks were both exaggerated and ankle-clonus was present in both feet. There was no Babinski sign. There was incoördination of both hands and slight pallor of the optic discs.

He was given large doses of antitetanic serum of high potency intrathecally, intramuscularly, and subcutaneously, for five days.

On Feb. 22nd the cerebro-spinal fluid was under increased pressure. He was put on four pints of milk in the 24 hours. On the 23rd, at 3 A.M., grs. 20 of chloral and grs. 30 of potassium bromide were given, as he was unable to sleep and complained of headache and pain in the back of the neck and between the shoulders. He had a bad night. His diet was increased by adding three eggs and 2 oz. of sugar of milk per diem, with water ad lib. to dilute the toxin. A rectal wash-out was given. The sores were treated with tinct. iod. three times daily. On the 24th rhonchi were present in the chest, owing probably to the rigidity of the diaphragm and the recti abdominis, so he was put on a mixture of ammon. carb. and vin. ipecac. His teeth were frequently attended to. Lemonade and Valentine's meat juice, one drachm in water every four hours, were given. On the 25th his pulse became weak and irregular. Natibaine ℥ 15 was given three times a day. At the same time he developed a severe attack of herpes labialis, which caused him considerable discomfort. This cleared up fairly soon with an ointment of hydr. ammon. chlor., grs. 10, ung. boric, drs. 2, ung. zinc, drs. 6. The abdomen was still very rigid, but the legs moved more freely. The rigidity of the jaws continued, and with the greatest effort he could not open his mouth more than 0·5 cm. He had no headache and was taking well five pints of milk and five eggs daily, with water, lemonade, and Valentine's meat juice, one drachm four-hourly. A third of a grain of morphine was given at night.

On Feb. 27th, as the spasm of the masseters continued and the mouth could be opened only 0·5 cm. with much difficulty, 10,000 units of serum were given intracisternally under local anæsthesia, 1 c.cm. of 2 per cent. novocaine being injected into the skin and deep tissues at the back of the neck; 10,000 units of serum were given intramuscularly at the same time. After the intracisternal injection he had some headache all night, but this disappeared in the morning. On the morning of the 28th he stated that he had no headache and said that he "felt grand this morning." Eighteen hours after this injection his mouth could be opened to 0·9 cm. and both the abdomen and legs were less rigid. Later in the day he had slight headache. The optic discs showed slightly blurred outlines. The temperature was 98·4°, the pulse-rate 110; respirations 24.

On Feb. 29th the mouth opened more easily and the herpes had improved. He felt better in himself; his legs moved easily and were not so stiff. The abdomen was less rigid and the breathing was easier, due probably to the diaphragm being less rigid. On March 2nd the diet was increased to bread crumbs and mince. He was able to open his mouth 1 cm. On the 5th his mouth opened 1·1 cm. easily. There was still some rigidity of the abdomen, but no pain. The jaws did not feel so stiff. On the 6th the legs were less rigid, but the left was still more rigid than the right. The abdominal rigidity, although less than on admission, was still quite marked; the back muscles were much softer and felt more comfortable. On the 19th he could open his mouth 2·6 cm., which is about normal for him. There was still some rigidity of the abdominal muscles; otherwise he was in good health. On the 27th the rigidity of the abdominal wall had gone and he felt very well. He

was able to do work about the ward. On the 28th he was discharged.

Table of Injections of Antitetanic Serum.

Date, 1928.	Subcutaneous.	Intramuscular.	Intrathecal.	Intracisternal.	Total.
Feb. 22nd ..	—	10,000	20,000	—	30,000
,, 23rd ..	10,000	10,000	20,000	—	70,000
,, 24th ..	10,000	10,000	—	—	90,000
,, 25th ..	—	10,000	10,000	—	110,000
,, 26th ..	10,000	10,000	—	—	130,000
,, 27th ..	—	10,000	—	10,000	150,000
,, 28th ..	10,000	—	—	—	160,000
,, 29th ..	10,000	10,000	—	—	180,000
March 2nd ..	3,000	3,000	—	—	186,000
,, 6th ..	3,000	3,000	—	—	192,000

Pathologist's report on cerebro-spinal fluid.—Wassermann, negative. Cells, less than 1 per c.mm. Protein, 30 mg. per 100 c.cm.

The intracisternal injection seemed to have a more marked effect on the spasm of the jaws than on the other muscles, and the improvement in his general well-being was due to his being able on this account to take more nourishment, as well as to a great reduction in the toxic condition.

Technique of Cistern Puncture.

The cisterna magna lies anterior to the occipito-atlantoid ligament. Fluid is obtained at from 4·5 to 6 cm. depth; in this case it was obtained at 4·5 cm. In another case punctured a week later it was 5·6 cm. before fluid was obtained. The hair is shaved off the head at the back for about two inches. Tinct. iodi is applied and 1 c.cm. of 2 per cent. novocaine is injected in the line where the puncture is to be made. The patient is put on his left side with his head suitably flexed; a dab of tinct. iod. is smeared on the mastoid process in the external auditory meatus and glabella line. The needle, guarded to 5 cm., or more in a big patient, is inserted just above the spine of the axis, which can be felt, and is pushed in until the edge of the foramen magnum can be felt with the point, going very slowly, in order not to blunt the needle. The point is depressed and pushed carefully upward, in order to keep away from the medulla. There is usually about 2·5 cm. between the dura mater and the medulla. The needle should be pushed very slowly after feeling the edge of the foramen magnum, the stylet being frequently taken out to find if fluid is reached.

It is a good plan to rotate the needle, as it helps it to pierce the membranes with less force and thus reduces the risk of injuring the medulla.

When the cerebro-spinal fluid begins to flow 30 cm. or more are withdrawn and replaced by a rather lesser quantity of serum. The head should be kept low, using only one small pillow, and the foot of the bed raised by blocks about 6 inches high.

A CASE OF RECOVERY FROM AMYLOID DISEASE.

BY G. F. WALKER, M.D. LEEDS, M.R.C.P. LOND.,
LATE RESIDENT MEDICAL OFFICER, THE GENERAL INFIRMARY, LEEDS.

THE object of this account is to describe a case in which serious and advanced amyloid disease regressed completely when the septic focus was treated. Amyloid disease is rarely seen nowadays—regression appears to be outside ordinary clinical experience. Moreover, the case shows in a remarkable way how completely one lung can be thrown out of action without serious prejudice to the patient's vitality and activity.

In January, 1918, the patient, the only child of a widowed mother, and then aged 4, was admitted for a post-pneumonic empyema. Drainage by ordinary intercostal incision was established and the child did well at first. After a little while drainage became inadequate and the boy became a severe invalid with fever and wasting. Against the most urgent advice he was taken from hospital and was lost sight of by us. He was in a critical condition for many weeks; he was unable to move his limbs and had to be wheeled about in a little carriage. Again and again the wound spontaneously healed and reopened. In January, 1919, he reappeared in hospital in desperate straits. The wound was reopened and good drainage established, with marked amelioration in the condition. After some months of fair health fever and wasting returned and obvious septic absorption from a thoracic collection was taking place.

In November, 1919, further drainage by rib resection was effected, and again a marked improvement in general physique was noted. The wound healed and again broke down. A further rib resection was done with careful wound toilet, and the boy was not seen again for several months, during which time he enjoyed fair health. In January, 1920, his health began to fail again, and a serious decline took place. There was fever, wasting, and never-ending wound discharge.

By May, 1920, he was very anæmic and extremely wasted; altogether a miserably cachetic specimen. The operation site was an ugly sinus, discharging freely. The fingers were clubbed. The smooth and very considerable enlargement of the liver and the spleen (see figure) together with albuminuria made clear the diagnosis of amyloid disease.

The patient in May, 1920, showing deformity of chest and enlargement of liver and spleen.

The sinus was reopened and irrigated; there was great improvement in general health and some lessening of the discharge, but again relapse took place.

His condition was now so critical that it was thought hopeless to do anything further. After much doubt, surgical measures were again decided upon, largely on account of the recuperative power which this particular boy had shown in each preceding partial recovery phase. In October, 1920, Mr. J. F. Dobson performed an extensive thoracoplasty in several stages. He removed the posterior portions of the ribs over the wound site, taking a piece out of each rib from the third to the tenth inclusive. Very free drainage was thus provided and the chest wall was allowed to begin its collapse inwards. This collapse, which constituted the essential mode of cure in this patient, took place gradually over a period of 16 months. From February, 1921, to March, 1922, steady drainage and wall collapse were carefully tended at home and firm improvement noted in all ways. Diminution in size of the liver and spleen, with steadily lessening cachexia, was noted as early as May, 1921. In April, 1922, the wound was finally and soundly closed and the chest wall was permanently collapsed. The collapse was so great as to obliterate almost completely the left half of the thoracic cavity. Thereafter he never looked back; he began to grow rapidly and soon attained good health.

In 1926 he was a vivacious, active schoolboy, taking his place among his fellows at work and play. The liver and spleen could not be palpated, nor could any signs whatever of amyloid disease be detected. The left chest was completely stove in and there was a slight compensatory scoliosis, but there was remarkably little postural deformity visible when the boy was clothed in a loose shirt, and there was still less physical disability. No evidence of activity in the left lung could be heard, but the right lung was hypertrophic. In 1928 continued good health and welfare are reported.

I am indebted to Dr. W. H. Maxwell Telling and Mr. J. F. Dobson for permission to record this case.

AN UNUSUAL CASE OF LYMPHOGRANULOMA WITH GENERALISED METASTASES.

By B. B. Yodh, M.R.C.P. Lond.,
PHYSICIAN, SIR J. J. HOSPITAL, BOMBAY;
AND
S. R. Joglekar, F.R.C.S. Eng.,
SURGEON TO THE HOSPITAL.

THIS case is worthy of record, as it is rare for lymphogranuloma to develop general metastases and end fatally within a period of three weeks.

The patient, a Hindu male jeweller from Madras, aged 37, was admitted, on August 4th, 1927, into the medical wards of the Sir J. J. Hospital with an out-patient diagnosis of "ascites." The history was as follows:—For two months before admission the patient had suffered from gradual enlargement of the abdomen, swelling of the feet, dyspnœa and cough, especially at night. The complaint started with burning pain in the abdomen which lasted for five days only, and was followed by gradual abdominal enlargement.

Fifteen years previously the patient had had gonorrhœa and a "sore" on the penis, and for the last seven years pain in the abdomen on and off, made worse by meals, but relieved about two hours afterwards without any vomiting and without taking more food. The pain was, however, never bad enough to stop him from working, and his general health was quite good all the time. Five years previously he had had for a few months intermittent fever preceded by rigors. There was no history of dysentery. He was usually constipated.

He had drunk about half a bottle of whisky per day for 20 years and used to smoke a number of "bidis" (Indian cigarettes) per day. He had, however, stopped using alcohol and tobacco since the present complaint started. Father and brothers were alive and well; mother had died of "paralysis" eight years previously.

On admission the patient was wasted, anæmic, and had orthopnœa. Temp., 98° F.; pulse-rate, 112; resp., 35. The abdomen was greatly distended, and there were signs of free fluid in the pelvis and flanks. In the epigastrium a slightly nodular lump was felt. This was dull on percussion, and the dullness was continuous with the liver dullness above and the splenic dullness on the left side. The spleen was palpable three fingers' breadth below the costal margin. The respiratory system, except for a prolonged and harsh inspiratory sound, was normal. Pain in the joints was complained of, but there was no fluid or any other abnormality in any joint. The patient had œdema over both feet, but the cardiovascular and urinary systems were normal. Except for the abdominal pain and some constipation the alimentary system was normal, the patient having a good appetite and good digestion. There was no visible or palpable enlargement of the lymph glands in any part of the body on August 4th, when the patient was first seen, or on the 6th, when the abdomen was tapped and a little blood-stained fluid was withdrawn. Examination of the cellular deposit in this fluid revealed cells resembling epithelial cells, and also a few multi-nucleated cells.

The patient was transferred to the surgical side on August 9th with a view to exploratory operation. For the first time since admission glands in the axillæ and groins were seen to be enlarged. It was decided to tap the abdomen once more before an operation was performed, and this was done on the 15th. No more than a few c.cm. of blood-stained fluid came out. However, the same kind of fluid began to ooze out from the puncture in such large quantities that the dressings were completely soaked and had to be changed every half hour. On the 16th enlarged glands in the neck were first noticed, and there was a rapid increase in the size of the axillary and groin lymph glands. This led to a suspicion of some kind of leukæmia, but blood examination showed the following result:—Red cells: total count, 4,200,000 per c.mm. White cells: total count, 7800 per c.mm. Differential (300): polymorphs, 75 per cent.; lymphocytes, 22 per cent.; eosinophiles, 1 per cent.; basophiles, nil; large hyalines, 2 per cent.; abnormal leucocytes, nil.

On August 18th a lymph gland from the axilla was removed for microscopic examination, and the abdominal puncture, through which blood-stained fluid was oozing out continuously, was closed by a small plastic operation. By this time there were big glandular lumps on both sides of the neck. The patient was going rapidly downhill, and died suddenly on the 21st.

Post-mortem Examination.

Chest: Lungs collapsed, but normal in structure. Blood-stained fluid in the pleural cavities. Mediastinal glands enlarged. Heart and the big vessels normal except for a few atheromatous patches in the aorta.

Abdomen: Blood-stained fluid in the peritoneal cavity. All abdominal lymph glands enlarged. Liver enlarged but otherwise normal in appearance and consistency. No secondary deposits. Stomach and small intestines were normal, but in the large intestine a lump about 2 cm. in diameter was seen attached to the outer wall of the ascending colon, 4 inches above the cæcum. It projected into the lumen, but the mucous membrane was not ulcerated. The rest of the large bowel was normal. Spleen was very much enlarged and adherent to the diaphragm. A large white lump, about 6 cm. in diameter, was attached to the anterior edge and gastric surface. (This was the lump felt in the epigastrium.) Kidneys were normal.

Pieces were taken from the lymph glands, the spleen, and the ascending colon. Prof. V. R. Khanolkar examined them histologically and reported as follows:—"Lymph gland: The normal structure of the gland is entirely obliterated by a uniform tissue which shows extensive proliferation of endothelial cells, lymphoid cells, numerous plasma cells, and eosinophiles. Interspersed in this tissue are found blood capillaries and a varying number of large mononuclear and multinuclear cells with homogeneous cytoplasm and vesicular nuclei, which in multinuclear cells seem to override one another. The stroma is made up of loose connective tissue, rich in fibroblasts. Spleen: The capsule is very much thickened. There is hyperplasia of connective tissue stroma, and the substance is infiltrated by the type of tissue described above in connexion with the lymph gland. Intestine: The distinction between the submucous muscular and subserous coats is lost, and the normal structure is replaced by granulation tissue of the kind described in the lymph gland. The wall of the intestine is thickened (15 mm. in section) as a result of this process.

"Remarks: The tissues show the characters of a lymphogranuloma (Hodgkin's disease)."

This case was interesting from the diagnostic point of view. The history of addiction to alcohol and the ascites suggested cirrhosis of the liver, but the presence of blood-stained fluid and the character of the cellular deposit in it was in favour of malignancy. One of us (B. B. Y.) suspected a primary carcinomatous change in a cirrhotic liver, and the other (S. R. J.) suspected a primary growth of the stomach or the transverse colon, because of the epigastric lump and the long history of abdominal pains. The sudden enlargement of the lymph glands suggested further possibilities, such as generalised tuberculosis (though there was no fever), acute lymphadenoma, acute leukæmia, or a generalised carcinomatosis. The blood picture, however, excluded leukæmias. The diagnosis was really settled by histological investigation after death.

We are indebted to Prof. R. Row and Dr. P. V. Gharpure for the help given during the pathological investigations.

Medical Societies.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.

A MEETING of this Association was held on June 26th, Dr. Amy Sheppard presiding.

Dr. Letitia Fairfield gave an address on

Child Guidance.

She said that she had recently had the privilege of studying the methods used in America for dealing with delinquent and difficult children and had been greatly impressed by them. The idea that the chief need of the difficult child was help in adapting itself to its surroundings was not a new one, but the scheme of clinics on a large scale designed to this end dated only from 1908. At this time a group of women in America, of whom the most prominent was a Mrs. Dummer, conceived the idea that the treatment of the juvenile delinquent was unsatisfactory and unscientific. Mrs. Dummer decided to finance a clinic under Dr. W. Healy in Chicago, and he found that if the motives of the child delinquent were studied, it often became apparent that he was not

abnormal or psychopathic. Without careful inquiry it was often impossible to tell whether the child or the environment was responsible for the delinquency. From the failure of the child whose bad conduct had brought it into relations with the police, Dr. Healy worked back to those of lesser degrees of maladaptation, and came to the conclusion that the development of faulty habits might be checked and impulses might be trained in the right direction if the child were studied at an earlier stage. Meanwhile, other sociological efforts were being made. Mr. Clifford Beers, who had had an acute attack of insanity in early life and had suffered harsh treatment, resolved to dedicate his life to securing more understanding treatment of the insane. A great society, the National Committee for Mental Hygiene, with branches in all the States, arose from his efforts, and here also it was found necessary to work back to early years in order to find the origin of breakdowns in later life. This work had not proceeded on purely Freudian lines, nor had the child guidance movement developed on psycho-analytical principles, though all modern psychology had absorbed something from Freud's ideas. The psycho-biological theories of which Dr. Adolf Meyer, of the Johns Hopkins Medical School, was the chief exponent, had had much influence on the child guidance movement. This conception of conduct was that it represented the reaction between personality and environment. Myer hardly recognised types of mental disease, only types of individuals reacting to different conditions. He made no sharp distinction between the normal and the abnormal, the sane and the insane. It was on these lines that American social work was developing. Dr. Fairfield proceeded to describe the organisation of the child guidance movement. It involved a preliminary inquiry into the record of the child at school and at home, and into the results of the standardised tests for mental ability. It was surprising how often the cause of the difficulty was that the child was being tried beyond its mental capacity. Sometimes an incorrigible child was merely an overlooked defective. The tests could only be evaluated, however, with reference to the child's emotional reactions. A physical examination was performed on each child and was followed by a careful study of its environment by a "psychiatric" social worker, who was trained on the lines of our C.O.S. workers, but with special instruction in psychology and in the mechanism of behaviour. Dr. Fairfield pointed out that in America less emphasis was laid on material and more on personal factors. If a social worker in this country found that a child lived in a neat house and had good meals, she reported that he had a good home, and if the child did not get on well, the inference was that it was his own wicked little fault. No account was taken of the possibility that the mother might nag at the child or quarrel with her husband, in which case the psychological atmosphere would be that of a bad home. In any home, one spoilt child might call forth revenge reactions on the part of the others. Since all these factors were reported, the American histories were fuller than ours, and this was an advantage. The most important examination of the child was the final one by the trained medical psychiatrist, who had before him the reports of all the other workers. The examination when completed usually gave clear indications for treatment for the child of pre-school age or of school age. Children who failed during the period of parental training of the simpler instincts might develop enuresis, bad habits, temper tantrums, and persistent and serious food fads. In a certain percentage of cases they were very intractable. The education of teacher and parent in their management was being undertaken in association with kindergarten and nursery schools. For children of school age a "visiting" teacher with the training of a psychiatric social worker acted as adviser to the staff on problems of discipline. She also visited the home and reported to the teacher and vice versa, acting as a liaison officer. Since these agencies were available to deal with difficult children, only the really intractable cases needed elaborate study at guidance clinics. These clinics dealt with conduct problems and also with retardation in school work. In America the child who did not advance with his class was considered a disgrace to himself and his teacher. Very often the retardation was not a question of intelligence, but of conduct; in other cases the children were naughty because they were mentally dull and were tried too hard. Dr. Fairfield explained that the guidance clinics were under voluntary bodies such as the Commonwealth Fund, or were run in connexion with the big hospitals. The Commonwealth Fund was a wealthy organisation that had financed nine demonstration clinics, which served also as training centres. They were about to start one in London and were financing it for three years. At the Johns Hopkins Hospital, Dr. Esther Richards was in charge of an excellent clinic under the general direction of Dr. Meyer. The treatment might involve a radical change in the plans for a child's life, and was especially valuable for "dependant" children who were boarded out by voluntary societies in homes that might not be suitable to the individual need without considerable adjustment. The expansion of the movement both for children and adults was remarkable. Charitable societies were beginning to run guidance clinics, also the great department stores. District nursing associations sometimes paid a psychiatric worker to advise the nurses. This expansion proved the value of guidance clinics more conclusively than any statistics.

Discussion.

Dr. NINA DOBBIE pointed out that in England also many dependant children were boarded out in homes.

Dr. ALICE HUTCHISON said that in Leytonstone an admirable clinic was being run, but that throughout this country the work was limited by lack of funds.

Dr. H. MACKAY asked what number of children could be dealt with at any one clinic. This was relevant to the financial aspect of the work.

Dr. FAIRFIELD, in reply, said that the Cleveland Clinic consisted of three doctors, three social workers, and two or three psychologists. That team could deal with 1000 cases in a year.

SOCIETY OF BRITISH NEUROLOGICAL SURGEONS.

THE summer meeting of this Society was held in Edinburgh on June 8th and 9th, under the Presidency of Mr. WILFRED TROTTER, and with a full attendance of members.

On June 8th Mr. NORMAN DOTT opened the proceedings by performing an operation, at the Nursing Home at 19, Great King-street, in which he removed an osteoma from the roof of the orbit by means of an osteoplastic craniotomy.—Dr. LOGAN TURNER gave an account of his work on "The Paths of Intracranial Infection," demonstrating the meningeal and vascular connexions, particularly those in relation with the nasal passages.—In the afternoon Sir E. SHARPEY-SCHAFER related the results of a study of nerve section and regeneration in his own hands. This was followed by a discussion introduced by Dr. H. M. TRAQUAIR and Dr. A. H. H. SINCLAIR on the Relationships of Ophthalmology to Neurological Surgery, with special reference to visual field defects.—Dr. GRAHAM and Mr. DOTT showed some cases illustrating this subject.—Prof. EDWIN BRAMWELL described a case of Intracranial Aneurysm, and showed a specimen.—A dinner was held the same evening at the North British Hotel.

On June 9th a demonstration of Radiograms of the Skull was given by Dr. WOODBURN MORISON and Dr. HOPE FOWLER. Dr. Fowler discussed the Radiotherapy of Intracranial Tumours, some of Mr. Dott's cases thus treated being shown.—Prof. D. P. D. WILKIE demonstrated a case of intracranial dermoid cyst, successfully operated on by himself, and a case

of acoustic neuroma in which a cerebellar decompression operation had been carried out.—Prof. JOHN FRASER showed a case of injury to the brachial plexus, associated with a fracture of the clavicle by direct violence, and a case of elephantiasis and trophic disturbance of a lower extremity in a child affected by spina bifida.—Mr. W. W. WAGSTAFFE read a paper on the Incidence of Traumatic Epilepsy after Gunshot Wounds of the Head, and gave figures of the frequency of Jacksonian and generalised epilepsy after these injuries.—The meeting concluded with a demonstration of Various Kinds of Cranial Anomalies by Mr. D. M. GREIG, Curator to the Museum of the Royal College of Surgeons of Edinburgh, given in the hall of the College.

OXFORD OPHTHALMOLOGICAL CONGRESS.

THE eighteenth annual meeting, held from Thursday to Saturday, July 5th to 7th, in the department of Human Anatomy of Oxford University, was opened by a short address of welcome from the Master, Mr. Philip H. Adams, Reader in Ophthalmology of the University of Oxford. Dr. Leonard Hill then opened a

Symposium on the Ultra-violet Ray.

He dealt himself with the biologically active rays, their measurement and their penetration of the skin and eye, the theory of the action and immunity to rays, the comparison of sun and lamps as sources, and the action of rays as evidenced by erythema, and touched on hæmo-bactericidal power, rickets, ergosterol, vitamin D, and pigment formation. Some interesting slides of the erythema produced by ultra-violet ray were shown.

Dr. G. M. B. Dobson, F.R.S., spoke next on the effect of atmosphere, the altitude of the sun, and the presence of ozone on the transmission and the energy of ultra-violet rays, illustrating his remarks with curves and photographs.

Dr. W. J. Turrell gave his clinical experiences of the practical administration of ultra-violet rays, emphasising the importance of the regulation of dosage. The lamp he had used for 13 years was the tungsten arc.

Mr. W. R. Ackland dealt with phototherapy in the treatment of dental disease, referring especially to pyorrhœa and its relationship to ocular diseases.

Dr. N. S. Lucas related his experiences of the treatment of rickets in marmoset monkeys by ultra-violet rays, using a mercury-vapour lamp. Reaction was observed in the eyes much more rapidly than in the human subject—i.e., in one to two hours—but passed off more quickly. He considered that some ultra-violet radiation was essential for monkeys in captivity.

Mr. G. O. Hume spoke on the local application of the rays to the eye, emphasising the importance of selection of cases and dosage.

Mr. A. F. MacCallan, whilst recognising the beneficial effect of phototherapy, urged the need for a continued search for causal conditions, notably septic foci in teeth or tonsils.

Demonstrations.

In the afternoon Mr. E. E. Maddox showed an accommodation balance test, a new fixation site for the globe in intracapsular cataract extraction, and an apparatus for training amblyopia in squint on a new principle involving hand and eye.

Mr. Rayner Batten showed a collection of fundus drawings of diseases and anomalies of retinal and choroidal vessels.

Dr. Margaret Dobson showed a test for astigmatism in which the duochrome principle was applied to the Maddox "V" test.

Mr. George Young demonstrated the instruments he now uses in the operation of double sclerotomy for glaucoma which he has devised, and slides in which the effect of the operation could be seen.

Mr. W. Niccol showed slides of a carcinoma of the choroid secondary to carcinoma of the breast.

Mr. B. Cridland exhibited a test-type for children.

Annual Dinner.

At the annual dinner held in the evening in the Hall of Keble College Mr. Adams, who presided, mentioned that 18 new members had been elected during the year, the total membership being now 414, including eight hon. members. The attendance last year was 104, including a number of well-known ophthalmic surgeons from the continent and America. He regretted to have to record the loss since then through death of Prof. Felix Lagrange, a foundation member, Dr. Brownlow Riddell, Dr. W. J. Tyson, Mr. Fredk. Dale, and Mr. T. O'Kelly.

Friday morning opened with a preliminary report by Mr. Burdon Cooper on Spectroscopy of the Crystalline Lens with a lantern demonstration showing the results of the spectroscopic examination of normal and cataractous lenses. The spectrograms showed that in cataractous lenses potassium was diminished and calcium increased.

Mr. T. Harrison Butler next read a paper on Sympathetic Ophthalmia, which was discussed by Messrs. S. H. Browning, Malcolm Hepburn, H. M. Traquair, and A. W. Ormond.

Doyne Memorial Lecture.

This lecture was given by Dr. Arthur Thomson, Lees professor of human anatomy in the University of Oxford, who chose as his subject Observations on the Eyes of Birds. After reviewing the literature of the past 250 years on the pecten he described its anatomy with the aid of slides and models. He showed how the most prominent portion of this structure which projects furthest into the globe is more closely attached to the hyaloid membrane overlying it than the lateral portions. The hyaloid lying upon this black pigmented structure acts as a dark mirror and its function may reasonably be taken to be that of eliminating dazzle from the direct rays of the sun, with reflection of objects from the upper field of vision to some other part of the retina. The value of this in the case of all birds other than prey-birds would be at once seen. The latter hovering with back to the sun and in the region of dazzle as far as the ground bird is concerned is in a position of vantage. If, however, the bridge of the pecten is a dark mirror, reflecting the image of the prey-bird, nature has provided the ground-bird with a suitable means of defence.

At the conclusion of the lecture Prof. Thomson was presented with the Doyne memorial medal for the year.

Mr. G. R. de Beer, lecturer in comparative and experimental embryology in the University of Oxford, then gave a paper embodying original work on the development of the vertebrate eye.

In the afternoon a visit was paid to the Morris Motor Works.

On Saturday morning the session opened with a paper by Lieut.-Colonel Henry Smith, on the Nutrition of the Lens and Vitreous. On analogy with the uterus with its rhythmic contractions as a means of maintaining circulation and thereby nutrition, he suggested that a sluice-like action of the ciliary muscle of the eye occurred whereby the canal of Schlemm and neighbouring spaces were opened and relaxed and so aided the circulation of the aqueous humour.

Clinical Cases.

Reports were given of the following cases:—

Miss Ida Mann: "A Congenital Abnormality of the Retina."

Mr. John Rowan: "A Case of Gliomata of the Retina." Both eyes were removed for gliomata at 1 year and 5 months; no recurrence after over three and a half years.

Mr. George Young: "A Case for Diagnosis." Enuresis up to the age of 17, which disappeared after correction of some hypermetropic astigmatism.

Mr. J. A. Ross: "Keratitis with Intranasal Causation." Keratitis of 15 years' standing cured after treatment of an anterior ethmoiditis.

Mr. C. G. Russ Wood: "Case of Mikulicz's Disease with Complications."

Mr. W. Niccol: "A Case of Recurring Membranous Conjunctivitis."

Miss Marion Gilchrist: "A Case of Keratitis Marginalis Profunda occurring in Both Eyes."

In addition to the scientific exhibits a commercial museum was on view in which 14 well-known makers of ophthalmic instruments showed their latest forms of apparatus.

The attendance at the Congress was well over a hundred; the absence of members from abroad is to be explained by the fact that the International Congress of Ophthalmology falls next year at Amsterdam.

PATHOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.

A MEETING of this Society was held in the University New Buildings, Edinburgh, on July 13th and 14th, Prof. J. LORRAIN SMITH, Prof. T. J. MACKIE, and Dr. A. G. MCKENDRICK in the chair.

W. M. CROFTON (Dublin) described a pleomorphic microbe which he had isolated from vaccine lymph and small-pox, and IVY MACKENZIE (Glasgow) dealt with another organism, obtained on many occasions from the cerebro-spinal fluid of an obscure nervous case, which appeared as threads cocci or diphtheroid bacilli, Gram-positive and Gram-negative, under different conditions.—L. S. P. DAVIDSON (Edinburgh) had found a great excess of *B. welchii*, *B. coli*, and streptococci in the stomach contents and fæces of cases of pernicious anæmia; the degree of sepsis was not altered when the anæmia was cured with a liver diet. No special type of organism could be identified as associated with the disease.—J. CRUICKSHANK (Aberdeen) pointed out that the Voges-Proskauer reaction (due to the production of acetylmethylcarbinol by certain intestinal bacilli) was obtained more quickly and certainly if glucose in the medium was replaced by cane-sugar.—D. P. D. WILKIE (Edinburgh) in cases of cholecystitis found streptococci much more frequently in the cystic lymph gland than in the contents or wall of the gall-bladder; the cocci thus obtained when repeatedly inoculated into rabbits produced a chronic cholecystitis and gall-stones.—H. J. PARISH and C. C. OKELL (London) retested 533 Schick-negative children one to seven years later and found 1·1 per cent. positive; of 440 children who had been made Schick-negative by immunisation 5 per cent. proved to have become positive after about the same length of time.—J. A. ARKWRIGHT (London) discussed the parallelism between acid and serum agglutinations.—C. H. BROWNING and E. M. DUNLOP (Glasgow) dealt with the influence of the amount of alcohol in the mixtures on the Wassermann reaction.—E. M. DUNLOP (Glasgow) described his observations on the fixation of complement by typhoid and other bacilli, and T. J. MACKIE (Edinburgh) discussed the action of normal serum and some non-antigenic substances.—J. GORDON and A. WORMALL (Leeds) had investigated the relationship between the bactericidal action of normal serum and its content in hæmolytic complement.—D. F. CAPPELL (Glasgow) found that filling up the reticulo-endothelial cells with, e.g., trypan blue had no influence one way or the other on the susceptibility of mice to pneumococci.—J. L. OWEN (Leith) argued that the present methods of determining blood groups were unsatisfactory owing to variations in titre and the presence of the third (C_Y) component, which might occur without A or B. Direct cross-testing between donor and recipient was the only safe procedure.—G. M. FINDLAY (London) explained the determination of bacteria to a locus of tissue injury by showing that injections of histamine had the same effect.—C. PRICE-JONES (London) had measured the red cells in a number of cases of pernicious anæmia before and after treatment with liver, and showed that the cure of the anæmia did not remove the excess of abnormally large cells, though it usually brought the diameter curve nearer the normal shape and position.—C. J. POLSON (Manchester) described his experiments on the disposal of dialysed iron injected intravenously by the reticulo-endothelial system.—C. DIVER, F. M. TURNER, and A. E. BOYCOTT (London) gave an account of the inheritance of reversed symmetry and the non-inheritance of monstrous shell-shapes in a mollusc.—J. LORRAIN SMITH and T. RETTIE (Edinburgh) studied the intestinal absorption of fat in the guinea-pig and suggested that the mucosa stores fat in much the same way as connective tissue.—W. E. GYE and W. J. PURDY (London) described further experiments on the filtrability and stability of extracts of Rous tumours, and pointed out the parallelism between the action of various agents on the effective agent in the tumour and on the virus of pleuro-pneumonia.—A. L. TAYLOR and M. J. STEWART (Leeds) described six single and multiple plasma-cell myelomata; the clinical course is relatively benign.—H. G. CRABTREE (London) had measured the carbohydrate metabolism of various pathological epithelial overgrowths and found that lesions such as those of fowl-pox showed the respiratory features supposed by Warburg to be characteristic of malignant tumours.—J. S. YOUNG (Leeds) showed that hyperplasia of the pleural endothelium and of the nearby alveolar epithelium could be produced by injecting strong solutions of sodium chloride into the pleural sac and more readily by calcium strontium and especially aluminium salts.—D. M. MORISON (Edinburgh) tied the ureter and introduced dyes into the kidney pelvis; they were absorbed first by the lymphatics and afterwards passed up the tubules as far as the second convoluted tubule.—T. SHENNAN (Aberdeen) defended the proposition that external mechanical violence often plays a part in producing partial or complete tears of the healthy aorta.—D. F. CAPPELL (Glasgow) showed three instances of vertebral chordoma, and W. SUSMAN (Manchester) an obscure, probably neurogenic, sacral tumour. T. D. HAMILTON and N. M. DOTT (Edinburgh) correlated the cytological characters of cerebral gliomata with their clinical history. G. MCCALLUM (Edinburgh) described an ovarian teratoma in which carcinoma and chorion-epithelioma developed.—A. W. GREENWOOD, C. F. W. ILLINGWORTH, and R. D. MACKENZIE (Edinburgh) showed a new transplantable fowl tumour; C. F. W. ILLINGWORTH a series of specimens of cholesterosis of the gall-bladder and the mechanism of formation of cholesterol stones on a pigment nucleus. W. G. BARNARD (London) showed giant-cells in organising broncho-pneumonia, queer bodies in granulomata in a rabbit's lung, and a mass of fungi crowded with tubercle bacilli in a tuberculous cavity in the lung.—W. Q. WOOD and D. P. D. WILKIE (Edinburgh) had an exhibit of carcinoma of rectum.—E. M. DUNLOP (Glasgow) showed two unusual organisms from urinary infections, D. F. CAPPELL (Glasgow) a tumour of pleura with glomerular metastases, W. F. HARVEY (Edinburgh) pathological conditions associated with heat-stroke and a series of large microscopic sections. D. G. S. MCLACHLAN (Edinburgh) demonstrated the formation of "clubs" round masses of tubercle bacilli injected intravenously.—T. SHENNAN (Aberdeen) showed how any ordinary photograph can have the parts required marked in with Indian ink and then the rest be bleached with iodine and acid hypo, leaving a black-and-white line and dot drawing.

STOCK EXCHANGE DERBY FUND.—From the Stock Exchange Mutual Subscription Fund, popularly known as "the Stock Exchange Derby Sweep," a sum of £50,530 has been allocated to a long list of charities, chiefly hospitals, being rather more than 10 per cent. of the total amount received.

Reviews and Notices of Books.

Mental Disorders.

By Hubert J. Norman, M.B., D.P.H. Edin., Medical Superintendent, Camberwell House, London; Lecturer on Mental Diseases, Westminster Hospital Medical School. Edinburgh: E. and S. Livingstone. 1928. Pp. 463. 14*s*.

Dr. Norman has fully justified his temerity, as he himself calls it in his preface, in adding yet another to the number of text-books on mental disorders. There are many new features in this handy volume, and it is written throughout with a literary knowledge which does much to hold the attention of the reader.

The book commences with a section on the common mental disorders, including mental deficiency. This is followed by a second part which deals with historical matters, psychology, pathology, treatment, and legal considerations. The next section commences with chapters on ætiology and classification, and passes on to describe mania and melancholia. There is no differentiation of the involutional type of depression which is described separately in most recent works. An excellent graphic representation of the phases of excitement and depression in manic depressive states is given, and Dr. Norman records several points concerning the manic depressive patient which are seldom found, even in much longer works. For instance, he notes that the delusions in manic depressive insanity may persist in active or latent form throughout the period of normality. This phenomenon is often encountered in practice, but seldom recorded in text-books. Schizophrenic reactions are dealt with as dementia præcox and delusional insanity, a term under which the author includes brief descriptions of paranoia and paraphrenia. There are certain objections to the continued use of such a general term as "delusional insanity" in view of the close similarity between dementia paranoides, paranoia, and paraphrenia. But the conditions are well described, and it must have been a difficult task to keep the book within small compass. Dr. Norman divides the psychoneuroses into hysteria, neurasthenia, and psychasthenia. He avoids the term anxiety neurosis, anxiety hysteria, and obsessional neurosis. He does not deal with modern psychopathology, and leaves open the question of psycho-analysis in the treatment of these conditions. There is much to be said for this attitude, especially since this handbook is likely to become popular with medical students, whose education in these matters requires to be undertaken with great care.

In the chapter on mental disorders associated with bodily diseases, it is surprising to find no mention of heart disease; disseminated sclerosis is ignored in the chapters devoted to mental disorders associated with organic disease of the nervous system. The urgency of early recognition of general paralysis might well be insisted upon in a future edition. The results of modern therapy are sufficiently impressive to make the early diagnosis of the disease a matter of great moment. Failure on the part of the practitioner to insist on venepuncture and lumbar puncture as soon as there can be any suspicion of general paralysis may well come to be regarded as negligence by the public. Apart from these small points, the account of the mental disorders is one of the best presentations available for the busy student of medicine.

The section on psychology reflects the author's leaning towards the physiogenic school of thought. He is anxious to correlate disordered conduct with disordered neurones. Consequently, the school which regards the wish as the unit of mind is not very adequately represented in the text. Here, again, it is better that the student should be told nothing at all, than be given inaccurate and distorted accounts of the psychological concepts which have resulted from the work of Freud. Unique among text-books is the charming chapter on "clinical examples in life and literature." From the enormities of some of the Cæsars to the adventures of Mr. Preemby in "Christina Alberta's Father," Dr. Norman gives us a glimpse of a veritable gallery of insane portraiture drawn from history and literature. The reading of this chapter provides a great stimulus to the interest of a casual reader, and is likely to promote interest in mental disease among both students and practitioners. Finally, there are adequate chapters on mental deficiency, on pathology and treatment, and on the legal relationships of insanity. The bibliography at the end of the book reflects the wide reading of the author, and is a most useful appendage to the volume.

This book can be commended especially to the medical student. It contains a great deal of matter in a small space, and is admirably printed and illustrated. Dr. Norman is to be congratulated on his success in the apparently impossible task of writing a short text-book on mental diseases which will give the veteran fresh ideas and new outlooks, and will provide the recruit with a sound grounding in psychiatry.

Text-book of Pathology.

Lehrbuch der Allgemeinen Pathologie und der Pathologischen Anatomie. By Prof. H. Ribbert. New edition by Dr. Carl Sternberg, Professor of Pathological Anatomy, University of Vienna. Leipzig: F. C. W. Vogel. 1928. M 45.

Ribbert's well-tried text-book of pathology has been happily reinspired by Prof. Carl Sternberg. The volume is up to date and accurate. It is intended for students, and does not take the place of such works as that of Aschoff, though the chapter on fat necrosis seems to show a certain coincidence of matter and phrasing—perhaps inevitable in the circumstances in the two volumes. The 700 illustrations include a photograph of a female corpse burnt to death which seems redundant. Monstrous twins are stressed too much in a book which dismisses blood diseases and malaria rather summarily. The treatment of arterial diseases is particularly good. The volume will not tell the specialist in pathology much that he did not know, but it covers with excellent judgment the whole field of morbid anatomy, and to a less degree morbid histology.

Food Infections and Food Intoxications.

By S. R. Damon, A.M., Ph.D., Associate Professor of Bacteriology, The Johns Hopkins University. London: Baillière, Tindall and Cox. 1928. Pp. 266. 18*s*.

Food may be poisonous to man because of the presence of inorganic chemicals, organic poisons, pathogenic bacteria, or larger parasites. Classification is not simple, however, because some pathogenic bacteria, such as *B. botulinus*, do not actually invade the human body but cause disease by reason of the exo-toxin they produce when growing in food substances. This exo-toxin acts like an organic chemical poison, and the disease botulism resembles an intoxication more than an infection. Dr. Damon has attempted such a logical classification and divided his book into three parts, dealing respectively with infections from food, intoxication from food, and parasitic infections acquired through food. This makes a convenient grouping for Salmonella infections, tuberculosis, undulant fever, and actinomycosis because these are all true infections, but, though logical, it savours of pedantry to divorce botulism from other microbic diseases, and make it keep company with potato poisoning, the poisonous fishes, and toadstools under the heading of intoxications. It might be expected also that the author should have found a place for the inorganic poisons, arsenic, lead, copper, and zinc, since the organic poisons have been given a good deal of room. Within its compass the book gives a useful and reliable account of food poisoning and provides an adequate list of references to further sources of information. The author is on safer ground when dealing with the purely scientific

aspects of the question; that his clinical observations are not always well founded is illustrated by his remark that the only two really important diseases from which the Salmonella infections need to be differentiated are dysentery and enteric fever. Readers introduced for the first time to the gruesome menace of botulism may be disappointed when they turn over the pages a second time to look for some comforting statement as to how this disease, fortunately extremely rare, can be prevented by the reheating of food. Many supporters of the cleaner milk movement in this country will feel that pasteurisation should have received more than one paragraph, and that arguments for and against its use cannot be fairly stated in a single sentence.

It has been said that food is the one subject in which everybody is interested. There is little doubt that this book will be widely read and act as a useful source of knowledge.

THE MENOPAUSE.

Die Wechseljahre der Frau. Von Privat-dozent Dr. HANS ZACHERL, Assistent der Universitäts-Frauenklinik in Graz. Vienna: Julius Springer. 1928. Pp. 127. R.M.750.

This paper-covered book on the menopause contains a series of post-graduate lectures delivered by the author. A section of ten pages deals with the physiology of the menopause, including its hygienic management, but the greater part of the book is concerned with its pathology, including hæmorrhage, diseases of the genitalia, and functional troubles such as vertigo, flushings, and other vascular and nervous phenomena. It is not to be expected that in such a slender volume all the diseases occurring at the menopause should be fully dealt with; for example, only about two pages are devoted to cancer of the uterus. The chief value of the work lies in the fact that attention is directed to diseases and functional disturbances *peculiar* to the menopause. In many respects the pathological nomenclature used differs from that familiar to British readers. Among the causes of menopausal metrorrhagia is included abnormal persistence of the Graafian follicle, which becomes cystic and palpably enlarged. The bleeding in these cases may be so severe as to lead to fatal anæmia, and is accompanied by enlargement and softening of the uterus and thickening of the mucosa. One of the commonest causes of pathological hæmorrhage at the menopause is stated to be defective power of inhibition of the corpus luteum leading to sudden ripening of the follicle. The ovary contains numbers of large and small, mostly atretic, follicles, and the endometrium undergoes hypertrophy and becomes polypoidal. Other causes of menopausal bleeding are fully discussed—e.g., arterio-sclerosis, vasomotor disturbances, and "adenomyosis." In the account of the last-named condition no note is taken of British or American work. The book is well worth the attention of British readers, if only for the frequency with which familiar conditions are viewed from an unfamiliar standpoint. A good discussion of the German literature on each subject is included, and a bibliography of some 300 references is appended.

EXPERIMENTAL MEDICINE.

An Introduction to the Study of Experimental Medicine. By CLAUDE BERNARD. Translated by HENRY COPLEY GREENE, A.M. New York: The Macmillan Company. 1927. Pp. 226. 12*s.* 6*d.*

THIS book, which first appeared in 1865, is now a classic. But the publication of Mr. Greene's excellent translation gives us an opportunity of directing the attention of the younger members of the profession, and especially of those engaged in research, to an admirable work. Every student of medicine knows of Claude Bernard as a great physiologist: few are aware that he sat in the Chair of Medicine at the Collège de France, while none, unless he has read this book, can follow closely the spirit in which his work was accomplished. This introduction to the study of experimental medicine, as Prof. Lawrence Henderson points out in his appreciation of the author, gives to the student some understanding of the art of research, and of the inevitable conditions and limitations of scientific discovery—in short, makes him understand what science really is. He will learn from the numerous examples which Bernard draws from his own investigations something of the working of the mind of a man of genius, notably the necessity for philosophic doubt, for the avoidance of fixed ideas, and for the preservation of freedom of mind. The book is more than a mere practical guide to the research worker as to how discoveries have been and are to be made. It meets and deals adequately with the criticism directed even to-day against experimental medicine by physicians of repute. The fact that medicine must always be something of an art does not imply that it should remain purely a science of observation. It is not sufficient merely to observe and foresee the course of diseases, and it is doubtful if even the most ardent disciple of Hippocrates acts up to the strict tenets of his faith by refusing to attempt in any way to alter their natural progress. Observation of patients must always be the constant basis of medical studies, empiricism acting more or less blindly is a valuable ally, but it is by the experimental method that we can most certainly isolate the essential elements of a disease, grasp its characteristics, and guide its treatment.

Paul Bert, the pupil and successor of Claude Bernard, praised this book for the masterly exposition of the rules of the experimental method, for the clarity of the attack on the great problems studied, and for its admirable literary style. In the translation these merits are no less obvious.

ALLEN'S COMMERCIAL ORGANIC CHEMISTRY.

Fifth edition. Vols. IV., V., and VI. Edited by S. S. SADLER, E. C. LATHROP, and C. A. MITCHELL. London: J. and A. Churchill. 30*s.* per vol.

Vol. IV. (740 pages) deals with the characteristic constituents and analysis of essential oils, resins, india-rubber, gutta-percha, balata, &c. The essential oils are discussed in two sections, one describing the individual oils, and the other the various chemical substances found in them. Comparison of this volume with the corresponding one of the previous edition shows that it has been largely rewritten and contains much new matter, more particularly in those sections dealing with general methods of analysis and with investigations of resins and of the important constituents of essential oils. The source and properties, physical and chemical, of these oils which play an important part in medicine, are set out clearly and concisely. The long interval between the publication of Vol. IV. and the two subsequent volumes caused some inconvenience to those who use this work for reference, and it is to be hoped that the concluding volumes will soon appear. The subject matter of Vol. V. (700 pages) includes tannins, the different kinds of ink, colouring matters of natural origin, and colouring substances in foods, benzene, aniline, pyridine, acridine bases, and so forth. Mr. Mitchell's discussion of inks is full of interest: there is a surprising amount of chemistry involved in their manufacture. Included in this volume are benzene and its homologues, logically leading up to the subject of colouring matters and synthetic dyes, to which the whole of Vol. VI. (658 pages) is devoted. This volume consists mainly of two long articles which cover the field of identification of the dyestuffs, and the testing of the substances obtained by splitting up the dye colour. To the colour chemist this volume will be invaluable.

THE price of "Simple Goitres," by Colonel R. McCarrison (Baillière, Tindall and Cox) is 10*s.* 6*d.*, and not as stated in our review of July 7th (p. 17).

THE LANCET.

LONDON: SATURDAY, JULY 21, 1928.

THE DEMAND FOR RADIUM.

THE International Conference on Cancer, the proceedings of which commenced on Tuesday morning last, has given already an opportunity for serious consideration in respect of the shortage of radium, which is occurring exactly at the period in its therapeutical history when its value is being definitely recognised. It can be taken for granted that, as the discussions in the various Sections of the Congress go forward, further evidence of this shortage will be forthcoming, but sufficient emerged on the first day of the proceedings to show that there is likely to be a demand for radium that cannot easily be satisfied, although it is the legitimate outcome of scientific investigation. It would seem to be a duty upon all authorities whom our profession immediately serve, to endeavour to obtain an improvement of the situation. Taking our own country as an example, there is no doubt that we are under-supplied with radium for medical purposes, and this can surely be said for other countries where medical research and scientific therapeutics are equally largely at the service of the community. The discussion at the International Conference on the relative value of surgery and radiation in the treatment of three of the most formidable regional divisions of malignant disease proves the difficulty of obtaining a sufficient supply of an invaluable weapon of treatment, and that this should be the situation to-day is tragic. For the use of radium in the treatment of cancer is not a new form of treatment or still in the speculative stage. It was introduced over 20 years ago, although at first the demand was small. Indeed, it may be said that for ten years after the introduction of the treatment the large majority of the medical profession was sceptical of the value of radium in malignant disease. Now, however, the position is altered, and those who are in touch with modern methods are convinced that radium, when properly applied, is a very valuable curative agent in malignant disease. This conviction has not been the outcome of any particular form of propaganda directed towards the optimistic view; rather it represents the massed opinion of a good many observers who have arrived at their conclusions individually, while to some extent the public also has been able to see the good results which have followed well-directed radium therapy, when the treatment has been applied properly to the appropriate cases. We may therefore assume that the medical advisers to the Ministry of Health are aware of the increased confidence now being placed in radium, and are also aware that in the not very distant future pressure may be put upon those in authority to assist in procuring it in response to urgent requiral.

It may be useful to pass in review some of the stages in the world's production of radium, and in particular to note the marked fluctuations in price. Soon after its discovery and isolation by Prof. CURIE and his wife, Madame CURIE, radium was prepared in several laboratories, when it was possible to sell it at as low a price as £2 per milligramme of the element. Then Prof. GIESEL in his laboratory at Brunswick, among others, prepared radium bromide of a high grade of purity at the same moderate price. When, however, radium began to be produced on a commercial scale the price rose rapidly, and throughout the war, when radium was in big demand for other than medical purposes, the price rose to £30 per milligramme of element. From that price it has fallen, but the figure is now about £12, and the price seems likely to remain about the same for intelligible reasons. The war had its special conditions, but it is natural to inquire whether there is any justification for charging £12 for an article which can on a laboratory scale be sold at a profit for £2. It would appear that here we have an unusual case where what is possible in the laboratory is not possible in the factory, and that small production is cheaper than large. The operations involved in the extraction of grammes from even a high grade ore is a large scale operation involving spacious premises, much labour, and many skilled operators, while at the moment there is but one source of mass supply of raw materials. At first Europe provided the supply, but, when the European reserves had been exploited, the American producers found that it paid them to extract radium from a very poor grade ore known as carnotite. This situation may have justified the enhanced cost, but now a find of much richer mineral in the Belgian Congo has resulted in the Belgian owners, the Union Minière de Katanga, becoming producers for the world of radium. Practically speaking, the radium that is now being bought and sold all comes from this source, while the monopoly bids fair to exist for some time. It would seem that only a discovery of a new source can ease the situation, but it would have to be a really rich deposit that was found before entry into competition with the existing producers would be profitable. All effort, however, to reduce the cost of radium is worth while. If medicine requires in this country say 20 g. of radium annually for the treatment of cancer about a quarter of a million pounds must be paid for it. This is a considerable sum even for a rich country to contemplate the spending of, while poor nations are hopelessly penalised at the present time.

The expense of radium makes it very necessary to consider, after it has been obtained, how it should be used, and what machinery, if any, can be put into action which will ensure its most efficient and most economical employment. If the proceedings at the Conference supply suggestive answers to these questions much practical good may result. Radium therapy has reached its present position largely as the result of a number of individual persons carrying out clinical work on cancer in an earnest spirit of investigation; a good many countries have contributed their individual researchers, and among these France is prominent indeed. It was right, therefore, that it should fall to Prof. CLAUD. REGAUD, the much respected head of the premier Radium Institute in the world, to open the first series of debates on the therapeutic value of radium, while his views on one of the questions set out above are already known. For Prof. REGAUD has expressed the opinion that it would be a mistake to increase in France the existing number of anti-cancer centres where radium therapy is employed, holding clearly that radium work is of a highly specialised kind and should be as far as possible centralised. This opinion may hold a very definite message for our country. Though there are no anti-cancer centres so-called in this country, there are quite a number of foci where radium therapy has been going on for some years. The radium investigations initiated by the Medical Research Council in 1921, and continued since then, need no special mention at this stage to our readers, but it might be well to bear in mind the 12 centres which are included in this scheme, and to

realise that here, at any rate, are centres where current technique is known and practised, and where new modes are tried out and developed. It might therefore be profitable to discuss the possibility of such centres acting as coördination units in a national scheme of radium therapy. The extension of radium therapy to many of the poor-law institutions of the country would appear to be inevitable in some form or other, and they would have nothing to lose, but much to gain, by being affiliated with centres which have been through the difficult period of probation.

THE PROBLEM OF HOOKWORM.

SEVEN years ago the conclusion was reached by certain workers on hookworm that it is futile to try to determine with the microscope whether the last ultimate parasite has been removed from an infected patient. Their technique was unspecified, but their dictum undoubtedly encouraged the practice of treating whole communities as infected on the ground that hookworm had been found in individuals. When this plan has been adopted the anthelmintic drug has sometimes killed people whose infection was quite unproved, and these casualties have brought into disrepute, and even ended, local campaigns against the disease. While CLAYTON LANE has clearly established how great are both the bionomic and economic human benefit accruing from disinfestation of a community paralysed by the disease, and has also shown that there is no scientific justification for the assumption that the lightly infected are of no importance in public health, he has condemned this herd treatment without diagnosis as impolitic, unscientific, and immoral. If this is so, there is no escape from the necessity to determine the presence or absence of the last ultimate hookworm. The proportions of the task may be seen in his estimate that 800 millions of mankind are infected with the worm. Since each person requires individual and accurate diagnosis, diagnostic technique becomes at once of prime importance.

Diagnosis must rest on examination of fæces for ova, and for this some method of concentrating ova and separating them from the obscuring fæcal material is necessary. With the vast numbers to be examined it is essential that both concentrative preliminary preparation and microscopical examination be made so far fool-proof that they can be delegated under supervision to the cheapest labour compatible with accuracy. The mass diagnosis of hookworm infection must be free from error and must not be costly. On the forbidding quest for a particular concentrative method which would best fulfil those conditions, CLAYTON LANE has spent ten years.[1] He adopted the principle, neglected by others, that any technique, "concentrative" or "control," which from the same evened quantity of fæces habitually delivered, quantity for quantity, more ova than did any other, was of necessity the most nearly accurate. Repeated testing, under similar conditions, of the various concentrative techniques in use, by such "control of controls," has given illuminating results. In this searching trial the method of direct centrifugal floatation (D.C.F.) which he devised, developed, and standardised, has proved the most efficient for those who require certainty in diagnosis of the presence or absence of hookworm ova, and accuracy in counting them. Its accuracy and easy readiness in use have already been demonstrated both in the hospital laboratory in England and in the hookworm field in the tropics, where its more extended employment, as it is inexpensive, waits only on wider publicity for its advantages. D.C.F., in the first or diagnostic spin, and using rapid lift, collects on the average 80 per cent. of the hookworm ova present in 1 c.cm. of fæces in a light infection. Pushed to finality it has not shown an ovum content persistently less than about 30 ova per c.cm., but CLAYTON LANE has marshalled cogent evidence to show that this represents "the minimum ovum content normal for hookworms"—that is, the number of ova present in 1 c.cm. of fæces if a single female is ovipositing normally.

Direct centrifugal floatation collects trichostrongylus ova with the same facility as it does hookworm ova, and also, in striking manner, giardia cysts. Its author is to be congratulated on a patient and admirable research whose result, long needed, is of immediate usefulness and value. It makes possible that high diagnostic efficiency which, he insists, is indispensable if the hookworm problem is to be solved by humane and scientific means; for however convinced an administration may be of the moral and material benefits of disinfestation, the money is nowhere available in the tropics to carry this out on a country-wide scale. Every farthing, therefore, spent on every section of the campaign must be made to produce the greatest possible benefit; and it has not yet been seriously envisaged that prevention of infection for most of the hundreds of millions of human beings now exposed to infection and reinfection can proceed otherwise than by expulsion of the parasite from those carrying it. It is true that if all wore boots, or could use the conveniences of a water-borne sewage system, the infection would become a rarity. In fact the 800 million infected are barefooted, and—what is vital to the problem—are left to their own particular, and too often peculiar, fancy as to where they shall defæcate. Attempts to control this wayward fancy are wisely held up until effective latrine systems can be devised. The only basis of efficiency here is accurate knowledge of the bionomics, and especially the migratory powers of the infective ankylostome larva. Its life in fæcal material and soil has repeatedly been studied, notably of late by many American workers. Vertical migration of the larvæ was noted, but their recovery from a culture has been considered a dependable measure of the number that had developed; and their disappearance a token of their death. Then FÜLLEBORN'S experiments demonstrated that strongyloides larvæ at the infective wandering stage migrated in every direction and every plane. Now CLAYTON LANE[2] shows by ingenious experiments, in conditions in which there was control of single factors, that ankylostome larvæ migrate laterally as well as up and down; and that, in hydraulic or other conditions favourable for migration, the better nourished and the more vigorous (that is, more capable of producing infection) the larvæ, the fewer will remain behind to be enumerated. Their absence often signifies not their death but their vicious vitality. In his experiments every culture was surrounded by a water trap into which the migratory infective larvæ tumbled. It was noted that few escaped from this water trap—a plain pointer to the style and form of the effective anti-ankylostome latrine. Untrapped cultures, therefore, can afford no assured indication as to viability of hookworm ova, longevity of larvæ in soil, or their migratory capabilities. And it is on untrapped cultures that nearly the whole of our supposed knowledge on these essential matters is at present based.

[1] The Mass Diagnosis of Hookworm Infection, The American Journal of Hygiene, vol. viii., May Supplement, 1928.

[2] Trans. Roy. Soc. Trop. Med. and Hyg., 1928, xxi., 309.

DICHOTOMY OR FEE-SPLITTING.

WE published last week a letter from a correspondent, who gave a very good reason for remaining anonymous, on what he described as an obnoxious practice which he had reason to believe is rapidly extending in certain parts of London. This practice consists in the diversion of part of a consultant's fee, without the knowledge of the patient, to the practitioner who has advised the consultation. The patient believes that his whole payment is made to the surgeon or physician who has been called in, whereas part of the fee has, in fact, been deducted as a commission for the practitioner. There are, we have been assured, a large number of consultants in this country who have no cognisance of any such practice, and these may be inclined even to question its occurrence, but it may be recalled that several years ago, in accordance with a widely felt desire, a meeting of consultants and specialists was called in a provincial centre to discuss the practice, and two resolutions were passed and circulated to all the practitioners in the neighbourhood. The resolutions were worded thus :—

1. It is improper for a Consultant to transfer any portion of his consultation- or operation-fee to the Practitioner who has called him in. The Consultant who offers or agrees to such payment, however innocently, is open to the suspicion of paying a "commission" for his own advantage. The Practitioner who accepts or asks for it cannot maintain the position of a trusted and unbiased adviser as to the need for a consultation and the selection of a Consultant.

2. No Consultant or Specialist shall pay to the General Practitioner who is associated with him in a case any part of an operation-, consultation-, or so-called "inclusive" fee, unless he informs the patient or his representatives of the services for which the payment is made and the amount of such payment.

The situation is one which has been freely discussed for some time past in the United States of America, and at its April meeting the New York Medical Society received a report on the subject from its Committee of Economics. This report was, it appears, tabled without any vote being taken upon it, and our contemporary, *American Medicine*, in expressing its disapproval of the abortive result adds it would be interesting to have some patient sue a member of the profession for the return of money known to have been paid to the doctor referring the case. The word "known" is the crux, for in this country and, presumably, also in the United States, both the offer and the acceptance of a secret commission are punishable at law, and evidence is therefore difficult to come by. A mass of information is, however, now available owing to the action of the *Medical Journal and Record* (of New York) in throwing open its columns to its readers in the form of an "open forum," without editorially taking any sides in the matter. A questionaire was submitted to readers with the remark: "We want you to have your say, and we want you to be indulgent enough, if indulgent it may be called, to hear what the other man has to say, and so the matter stands. This is your department. Make use of it." The material result has been some 55 columns of print embodying the personal views of several hundreds of doctors. These views are extremely varied. Two groups, as no doubt was to be expected, predominate—namely, those who wish to deny, with more or less emphasis, the existence of the practice at all; and those who have utilised the opportunity for criticising the behaviour of their colleagues with an extreme, if not imaginative, freedom. It seems clear, from the mere number of the former group, that there are many members of the medical profession, especially in the Eastern States and their large towns, who have not come in contact with fee-splitting at all; whereas it is equally evident that in the Middle West, and still more in the Southern States and in Texas, fee-splitting is by no means exceptional. A New Orleans correspondent states that in Louisiana it is a common practice; in Alabama it seems to have been almost a rule 15 or 20 years ago, although not nearly so prevalent now; in Ohio a signed contribution states that it is universal, while a Wilmington practitioner understands, in a general way, that many of the general surgeons and specialists in Cincinnati split fees with small-town doctors who refer them cases. A Minnesota physician remarks that the practice is quite inevitable under present conditions, the large fees received by surgical specialists being its foundation. The ex-president of Iowa State Medical Society says, quite frankly, that 75 per cent. of the doctors of Iowa and Nebraska "want splits." These examples may suffice to give some idea of the relative prevalence of fee-splitting in the various United States. The report does not cover Latin America, if only for the reason that division of the total fee paid between the specialist and the family doctor is apparently the accepted practice there.

Something has already been said, incidentally, regarding the circumstances which have brought about such a state of affairs. A New York correspondent's statement may be given as an example. He writes: "The newcomer, or unknown specialist, in his desire to increase his clientèle, offers part of his fee as an inducement to the family physician. Many young surgeons find it impossible to build up a practice any other way. Some prominent specialists with good followings take into consideration the plight of the referring physician and give him a portion of the fee on the basis of good fellowship." For these reasons he regards the hope of eliminating fee-splitting completely from medical practice as rather meagre, and there is, in fact, throughout the symposium not only a wide admission of the practice and of its inevitability, but a good deal of justification for it. The legal profession, writes a Baltimore physician, splits fees and finds nothing wrong with it. (The analogy would fail in this country if applied to a busy barrister sharing his fee with another barrister who has devilled a case for him, for there is no element of agency.) A New York physician feels that for the younger man fee-splitting should be legitimatised, for it cannot be eradicated. As a remedial measure another suggests the sharing openly of the surgical fee between the surgeon and the practitioner who refers the case, the surgeon receiving two-thirds or three-quarters of the fee, and the medical man openly receiving one-third or one-quarter. An official of the Prudential Insurance Company remarks that fee-splitting amounts to doing the right thing in the wrong way. From Denver comes the suggestion that the patient should be informed of the fact that the diagnosis of the surgical condition by the attending physician is frequently worth as much to the patient as the operation itself. The practitioner should therefore have courage enough to charge for his diagnosis and time; and, if need be, the specialist should mention to the patient that he is cutting down his fee so that the patient can pay the family doctor. The hardship is specially well stated by a New York contributor, who writes: "The family physician who calls with his patient to the consultant and spends from two to three hours or more, or visits the operating room, he is entitled to a reasonable fee. The patient should be told by the consultant or surgeon that his fee covers the fee for services of the family physician. Call it a collective fee or what you please. Patients will not pay the family physician any additional conference fee." And another remarks: "It is rather peculiar that it is perfectly ethical for the surgeon to pay his assistants out of his fee and yet not allow the family physician to assist and pay him." The situation is summed up in an article by Dr. A. L. Wolbarst, of New York, who after acknowledging that fee-splitting is a serious evil and one growing by leaps and bounds (not only in America but in Europe as well), describes it as the natural out-growth of the widespread specialisation in medicine, which Dr. Thayer deplored in his presidential address to the American Medical Association last month. Both the surgeon and the practitioner have come to realise that prosperity

lies in the close economic coöperation which is represented by the split-fee. Under existing practice, the amount of the specialist's fee is paid to him, and he either retains it entirely, or returns part of it secretly to the family doctor, in the form of the illicit split-fee. "The time has come," he says, "for a revision of the code and for recognising the principle of open ethical fee-sharing as just and equitable." This modification of the code should provide that the specialist's fee shall include the doctor's fee, and it shall be deemed as much a violation of the code for the specialist to withhold the doctor's rightful share as for the doctor to demand, or the specialist to offer, more than the duly established proportion. He does not regard the plan as perfect, but submits it as likely to improve the position of all three parties to the bargain.

The symposium may, as we have suggested, not represent very closely the average medical view in the United States, but it will have afforded an opportunity of utterance for extremists in both directions. Nevertheless no one can read the testimony brought forward in this "open forum" without gaining the impression that there is a situation which is not being met by ethical action alone, and may require some adjustment to the changing conditions of medical practice, especially in relation to the development of specialisation in America.

Annotations.

"Ne quid nimis."

PNEUMONIA ON THE RAND.

IN 1912, following a visit to the Rand by Sir Almroth Wright, a system was inaugurated of routine prophylactic inoculation of natives employed in the mines against pneumococcal infections. Since the independent discovery by Sir Spencer Lister, working at the South African Institute for Medical Research, and by American observers, that pneumococci can be separated into different serological groups, the vaccine used has been a mixed one. In 1919 [1] we commented on the progressive fall in the incidence and mortality-rates of lobar pneumonia in the large population at risk. The average annual death-rate for the years 1908 to 1911 was about 12 per 1000. After that it fell steadily, with the exception of a rise in 1915, which coincided with a reduced issue of vaccine; by 1918 it was already less than 4 per 1000. The descent in the curve has been attributed in South Africa and elsewhere to the use of the vaccine.

Unfortunately, though prophylactic inoculation is still being zealously carried out and the efforts to improve the hygiene of life in compounds have certainly not been relaxed, during the last few years the incidence- and mortality-rates have shown a tendency to rise. In the important group of mines controlled by the Rand Mines, Ltd., for example, the mortality-rate, which was under 1·5 per 1000 in 1920, has since risen again irregularly, until in 1927 it was only just under 5. An attempt to ascertain the factors responsible for this disappointing rise has recently been made by the Transvaal Mine Medical Officers Association. In August, 1927, following on a communication from the Gold Producers' Committee, the Association appointed a subcommittee, consisting of Dr. A. J. Orenstein (convener), Dr. H. Butt, Dr. A. Frew, and Dr. C. Scholtz, to report on the serious increase in mortality from disease among natives in the earlier months of 1927. For this increase the pneumonias were found to be mainly responsible. The subcommittee issued a questionaire to all mine medical officers in September last, and a critical summary of the information received is the substance of their report, which has now been printed in the Proceedings of the Transvaal Mine Medical Officers Association (April, 1928). The data under review concern the natives employed in 30 mines during the periods from Jan. 1st to August 31st in 1926 (168,000 boys), and in 1927 (166,000 boys). Of these, approximately 94,500 in each year were South African natives, the rest being from the East Coast. Both lobar and broncho- and influenzal pneumonias were studied and the tables and statistics on which the conclusions are based are set out in full. Some interesting results have emerged. For example, in both years approximately half the cases of lobar and of broncho-pneumonia occurred in the first three months of employment; no definite correlation was observed between recruiting ratios and incidence and mortality from any form of pneumonia. The case mortality varied only slightly, showing that the severity of the attacks was not markedly different in the two years. The chief conclusions reached are that the physique of the native recruits plays a considerable rôle in both attack-rate and mortality-rate from the pneumonias; that natives sleeping singly in partitioned-off concrete bunks are less prone to attacks of pneumonia; that there is probably a periodicity in the incidence of pneumonias, and that the Witwatersrand mines are now going through a period of rise in the curve of incidence. A graph giving the incidence of pneumonias in Chicago between the years 1867 and 1925 lends support to this suggestion. No ground was found for any suspicion that slackness in vaccination might be responsible for the increased incidence and mortality. Some of the statistics on lobar pneumonia among underground workers seemed to indicate that pneumococcal vaccine gives better prophylactic results in one 2 c.cm. dose than in three c.cm. given in divided doses, which is the more usual method. On one mine only one inoculation of 1 c.cm. of pneumococcal vaccine was used, and except in the incidence of lobar pneumonia among East Coast natives, this mine had a smaller incidence than the average for all the mines. The recommendations made are that the physical standard of recruits should be correlated with that recommended by the Association, that all compound rooms should, as soon as possible, be fitted with partitioned-off concrete bunks, and that the whole matter of prophylactic vaccination should be exhaustively examined at an early date. At the meeting of the Transvaal Mine Medical Officers Association, to which this report was presented,[2] some of the medical officers spoke in favour of discontinuing inoculation. A better plan, and one which is likely to be adopted, is the suggestion that the natives on each mine should be divided into equal batches, of which one only should be inoculated. If administrative difficulties prevent this simple differentiation of employees, a certain number of mining areas could be set apart and used as controls. The opportunity for a clear test seems to have arrived. While the incidence- and mortality-rates were decreasing, it might not have been justifiable to withhold prophylactic treatment. But when these rates are rising, in spite of vaccination, there can be no ethical reason why a large-scale experiment should not be tried. It would be difficult to believe that the dramatic fall of the curve of lobar pneumonia in the years following 1912 was an epidemiological phenomenon independent of prophylactic vaccination; but should a controlled test on a rising curve show that vaccines have but little effect, the whole question will have to be reopened, since the expense involved must be considerable. The stumbling-block against the acceptance of the efficacy of vaccination has always been the fact that an attack of pneumonia confers no immunity, but the apparent success of inoculation in South Africa has been an argument difficult to controvert. The Transvaal mine medical officers have now an opportunity to devise a series of crucial tests which should provide definite evidence for or against the value of prophylactic inoculation against pneumonia.

[1] THE LANCET, 1919, ii., 984.

[2] Journal of the Medical Association of South Africa (B.M.A.), June 9th, p. 309.

OCULAR MUSCLE BALANCE IN FLYING MEN.

THE successful handling of aircraft makes a big demand on visual acuity and balance. In examining pilots for flying aptitude, consideration was given mainly to visual acuity until it became established that "fast landers" almost uniformly possessed good visual judgment, whereas a large percentage of those who could not land manifested defective visual judgment. This led to tests for visual judgment being added to the usual routine ophthalmic examination. The tests deemed sufficient to expose the presence of muscle imbalance in flying personnel are set out on pp. 141 ff. of the Manual for Medical Officers of the Royal Air Force.[1] They include: (*a*) the convergence test; (*b*) the cover test; (*c*) the red-green (phorometer) test; (*d*) the Bishop-Harman diagram test. A typical case of poor response to the four tests mentioned would be one in which: (*a*) the convergence near point is over 4 in.; (*b*) the cover test reveals "neglect" or suppression in the case of the covered eye, so that it either failed to take up fixation or reacted in a very sluggish manner after being uncovered; (*c*) there is a separation of four or more inches (1–2 prism dioptres) between the superimposed red and green lights at 20 ft. or a marked hyperphoria; (*d*) a diaphragm result of four or worse (normal 0–1). Subjects with muscle imbalance, practically without exception, take a time considerably over normal before they learn to land—some, indeed, never learn to land at all. Those who show a tendency to exophoria flatten their machines out too early; those with esophoria are inclined to flatten out too late, and fly into the ground. These defects are naturally the more accentuated the faster the landing speed of the machine. That defective visual judgment, as demonstrated by the tests described, is actually the cause of many landing troubles has been amply proved by the effects of visual training, both on those pupils who had failed to qualify, or who were indifferent pilots when qualified, and on those pilots who concomitantly with disease or accident had developed ocular muscular defects. Visual training carried out either by means of Worth's amblyoscope alone, or combined with the stereoscope, as demanded by the type of case, has proved of great value. It is stated that pilots who were a trial to their instructors, and a source of danger to themselves, have, after successful training, not only developed into sound flyers, but have, in a number of instances, become well known as instructors at flying schools. Exceptions naturally arise from time to time as, for example, when a man has superimposed handicaps such as lack of flying temperament or inability to perform the fine coördinated movements inseparable from modern light machine flying. It appears that the most simple cases are those of pure exophoria which are found in pilots who: (*a*) had a tendency towards this condition on entry not sufficient to warrant rejection; (*b*) suffered from some illness, such as influenza, malaria, sandfly fever, or became gradually debilitated from tropical service; or (*c*) suffered from cerebral concussion after some accident. Types (*a*) and (*b*) require training for their correction; type (*c*) shows, in some instances, a remarkable power of righting with time unless the continued irritation of a diplopia has produced the monocular habit as a way of escape. Less simple are the esophorias, whether of the usual form with hypermetropia as a basis, or the so-called pseudo-esophoria of spasmodic character, produced sometimes by sun-glare, sometimes as a subconscious means of mastering the inroad of a mild exophoria. This condition raises the problem of the irregular control of nerve impulses, and it is open to controversy how it is acquired. An interestlng type is that in which the "neglect" or "suppression" factor is predominant either as "monocular neglect" or "alternating neglect." In the first instance, one eye receives and registers continual impressions while the other registers impressions irregularly; in the second, one eye functions for a time and then gives way entirely to the other, and so on. The pilot with "alternating neglect" tends to fly his machine after the zigzag fashion of the snipe. In training these cases the "neglect" factor must first be dealt with if satisfactory results are to be obtained. Finally, there are a few pilots of the war school who possess only one useful eye. They have either lost the use of one eye in infancy and have acquired the "monocular sense," or have been spared the "master eye," and then fly, as it were, along a "memory sagittal line." There is much else of interest in the Manual; we have selected for comment a subject of immediate topical interest.

[1] Air Publication, 1269. H.M. Stat. Office. 3*s*. 6*d*.

BOARD OR DEPARTMENT ?

THE Reorganisation of Offices (Scotland) Bill, which is likely to become law before Parliament rises for the vacation, proposes to substitute Departments for Boards in the administration of health, agriculture, and prisons north of the Tweed. The Bill has other miscellaneous provisions relating to certain ancient legal offices, but the proposed changes in the constitution of the Scottish Board of Health and the Board of Agriculture for Scotland are those which have attracted the main attention. As in the similar Bill of 1924, they involve deleting the requirement that two medical practitioners, one or more women, and one practising lawyer shall be statutory members of the body administering health services in Scotland. These alterations will chiefly be viewed from three aspects. There is first the personal view, important enough to those whom it immediately concerns but liable to be overlooked by others—the view of particular officials whose prospects of promotion or superannuation may be affected. Next there is the wider view, suffused with the warm atmosphere of local patriotism—the view of those Scots who are satisfied with the institutions they have got and who are distrustful of any movement which may threaten the freedom of national contacts or may place some college-bred theoretically minded officialism above the native common sense and practical ability of Scotland. Finally, and at a marked disadvantage in popular support, there is the cold official aspect of a superior efficiency in administration, an impersonal abstraction associated perhaps in the all-seeing eye of the Treasury with some future prospect of economy or of a more perfectly standardised civil service free from any element of local patronage. The government of Scotland has its peculiarities and anomalies. By reason of the undeniable supremacy of the Parliament at Westminster there must be some minister in London—sometimes named the Secretary for Scotland, at other times (as now) one of His Majesty's principal Secretaries of State, specially charged with Scottish affairs—to answer for the conduct of Scottish government. Simultaneously the actual work of administration must be conducted at Edinburgh or elsewhere in Scotland by officers who have first hand acquaintance with the problems of that work. Thus there has been evolved at Dover House (the Scottish Office in Whitehall) a sort of post office or clearing house, an institution which would break down at any moment if it were not operated with remarkable competence and almost exclusively by a Scottish personnel. The Secretary of State has to consult the branches of Scottish administration in the north. He naturally knows it to be easier to communicate with a single official, the carefully selected head of a department, than to take the opinions and recommendations of the several members of a board which may not be unanimous. The board's advice may be a compromise, or the minister may have to adjudicate between the dissenting voices of majority and minority, and he knows that a collective mind is made up more slowly than that of a single individual.

There, then, is the issue. Is the Secretary of State to consult one person or many? Is he to deal with a super-civil servant or with a group of possibly independent advisers? If he listens to the expert administrator, will there not be a tendency to override or

exclude the technical expert in health, housing, or agriculture? The Scottish Members of Parliament who object to the Bill have pointed out that there is no allegation of existing inefficiency; they have specially praised the administration of the boards which deal with health, agriculture, and prisons; they maintain that the proposals mean the denationalisation of Scotland and will hasten the advent of home rule. On this wider issue of autonomy and national sentiment Scotland will find support from the Welsh Members of Parliament who have lately been protesting against the proposed reorganisation of the Welsh Board of Health. To the latter the Minister of Health has replied that the abolition of a chairman and the reduction of the Welsh Board from four to three members is not part of a policy of denationalisation; the Board has not been an executive body; it has met not more than 28 times in the past nine years; its work is done by individual members in their individual capacities; the present change is a matter of internal administration only, a question of personal arrangements. This question of personal arrangements arises also in the Scottish proposals. The existence or the near prospect of certain vacancies has caused the administrative changes to be pressed forward now at a moment when they can most smoothly be effected. Sir John Gilmour appears to have given some kind of assurance that he will hold himself as accessible to his technical advisers as heretofore, though he frankly maintains that experts must be controlled. We do not, he observed, allow the military and naval experts to carry out all they desire. Similarly, "if the medical man had his way, he might possibly impose upon Parliament and the country a system eminently desirable no doubt but so extravagant or so much in advance of the time that Parliament could not tolerate it." Sir John Gilmour's best argument is that every inquiry and commission which has examined the science of administration has recommended the change he proposes. England has a Board of Admiralty and a Board of Inland Revenue; she has a Board of Trade (of which the Archbishop of Canterbury is a member amongst others), but fortunately this Board can act with a quorum of one member. Apart from these instances, this country has usually adopted the system of ministries and departments, administered under a single permanent head, and in recent years Northern Ireland has found it worth while to copy the same model. Board or Department—it is not the label that matters but the sympathetic intelligence which the Scottish Office will no doubt continue to supply.

INDICAN IN THE BLOOD

IN 1924 C. H. Andrewes described in our columns[1] a new colour reaction which occurred on adding van den Bergh's diazo-reagent to the serum of patients with uræmia. His observations have been confirmed by other workers, and the test has been found of use in helping to diagnose the condition of renal failure. Andrewes failed to discover the nature of the substance which gave this reaction, but recently G. A. Harrison and R. J. Bromfield have shown[2] that the colour is given by an indoxyl compound presumed to be indican, which is potassium-indoxyl-sulphate. Indoxyl is formed in the body from tryptophane, one of the principal amino-acids in the protein molecule. The amount of indoxyl which is formed depends partly on the quantity and nature of the protein which is eaten, partly on the nature of the bacterial flora of the intestines. The indoxyl which is absorbed from the intestines combines (in the liver) with sulphuric acid, and the resulting indican is then passed on into the blood. If the kidneys are functioning properly, the amount of indican circulating in the blood is very small as it is excreted in the urine. The amount in the blood depends on four factors—namely, the quantity of tryptophane in the diet, the nature of the bacterial flora, the efficiency of the liver, and the efficiency of the kidneys. It has been found that the diazo-colour reaction runs roughly parallel with the concentration of urea and creatinine in the blood of uræmic patients, although the test occasionally proves negative. F. S. Patch and I. M. Rabinowitch[3] claim that in urological cases the diazo-test enables them to judge whether the excess of urea is of serious importance or not. This claim may have to be reconsidered now that the cause of the colour reaction is known to be indican, since in spite of gross renal damage, indican may not be present in excess in the blood owing to the failure of one of the factors necessary for its formation. Harrison and Bromfield are to be congratulated on their success in elucidating the cause of a colour reaction given by so complex a fluid as blood.

[1] THE LANCET, 1924, i., 590.
[2] Biochemical Journal, 1928, xxii., 43.

A FORGOTTEN RED CROSS PIONEER.

THE recent centenary celebration of the birth of Henri Dunant has stimulated the memory of Ferdinando Palasciano, surgeon to the army of the Neapolitan Bourbons, and his courageous advocacy of mercy to the wounded on the field of battle. From an account of his career by Prof. Cesare Baduel, director of the Italian Red Cross, we learn that Palasciano was early conscious of his responsibilities to soldiers, not only when they were effective combatants, but also when they were suffering and abandoned on the field of battle. At the present time it reads strange that, during the Sicilian insurrection against Bourbon rule in 1848, General Filangieri, who was besieging Messina, gave orders that no quarter was to be given to the enemy. Palasciano disregarded these orders and cared for the wounded of both sides. For this act of insubordination he was threatened with death, and he had to spend a year in prison as a reward for his clemency. Filangieri's persecution of Palasciano would doubtless have been more brutal had not King Ferdinand known him personally and valued him both as a man and as a scientist. In January, 1861, he offered to the Accademia Pontaniana at Naples a prize of 100 ducats for the best 100 rules of military surgery for the treatment of gunshot wounds. The prize was not awarded at first, but it was won some time later by Dr. Appia, of Geneva, and the Italian, De Vita. In connexion with this competition Palasciano declared before the Accademia Pontaniana that "belligerent powers, in their declaration of war, must recognise reciprocally the principle of the neutrality of the wounded and seriously ill, for the entire period of their treatment." He insisted that the principle of the neutrality of the wounded should be accepted, either by the ruling of an international congress, or by a special agreement between the belligerent powers inserted in the declaration of war. Five of his points were: (1) That the armies should be obliged to exchange wounded prisoners immediately after a battle. (2) All soldiers who were too severely wounded to be transported should be treated on the field of battle by the army's own sanitary service. (3) A sanitary staff, sufficient to care for wounded men in hostile territory, should be given a safe conduct and escort, and be allowed to remain until their task was finished, when, during a truce, the personnel could return to their own advanced post or to the frontier of the enemy's country. (4) All necessary food, lodging, and drugs should be provided by the Commissariat on the signature of the attending surgeons and on the assumption that reimbursement should be effected after the war. (5) In the case of sieges, and in addition to the exchange of the wounded, the besieged army should be allowed to send its wounded to any neutral country willing to receive them if the besieging army would not do so. In 1862 Henri Dunant published his "Souvenir de Solferino," which did so much to pave the way for the international conference of 1863. The International Convention, signed in August of the following year, neglected the fate of

[3] Jour. Amer. Med. Assoc., 1928, xc., 1092.

wounded men in naval battles. Palasciano insisted on the importance of this omission and appealed to the Italian Government to call another conference. The governments interested having come to an agreement, the Swiss Federal Council held another conference at Geneva in 1868. Palasciano did not attend it, but the amendments which he advocated to the Convention were adopted. He died on Nov. 28th, 1891, and was buried in the ground reserved for eminent men in the cemetery of Poggioreale at Naples.

ULTRA-VIOLET LIGHT APPLIED TO DISEASES OF THE EYE.

FROM the Ultra-violet Light Clinic, established at the Royal London Ophthalmic Hospital in the autumn of 1925, some interesting results are reported by Dr. W. S. Duke-Elder.[1] The 425 cases treated up to July, 1927, are classed into those in which general sun-baths were given and those in which the rays were applied directly to the eye. The number treated by general light baths was 306. Of these, roughly, one-third were cases of iritis and irido-cyclitis, one-third of phlyctenular keratitis, and the remainder of other diseases. The chief interest of the report lies in the cases of chronic and intractable iritis and irido-cyclitis, which have been treated without success for periods of months or years by all the known methods of therapy and which have responded well to the ray treatment. Of 76 cases of infective irido-cyclitis treated, 38, or just half, were cured, 30 showed more or less improvement, and only eight showed none. An eye, which has been the seat of active inflammation for many months, may well become quiet. On the other hand, gross structural changes are as unalterable under this as under any other treatment. Of 16 cases of choroiditis treated, the infective and the tuberculous cases did well, especially cases with persistently recurring lesions. Syphilitic cases did not respond to the treatment. Cases of scleritis and sclero-keratitis did well, and cases of phlyctenular keratitis, including extremely chronic relapsing cases, did best of all. Light may be considered almost a specific for this disease. The same may be said of obstinate blepharo-conjunctivitis occurring in debilitated patients. Duke-Elder's conclusion is that with judicious use the effects of ultra-violet light can be powerful for good, but they have their limitations and they always stop short of the marvellous. The main danger to be guarded against is over-dosage, and some patients may display an idiosyncrasy and develop symptoms of over-dosage, even while the exposures are kept well within the limits ordinarily safe. Care in this respect is especially to be insisted on in the case of patients with low blood pressure. Pyrexia is usually a contra-indication and care must be taken during menstrual periods. With regard to special effects on the skin and the eye, there is the danger of burns from excessive doses and of cataract, which must always be guarded against by the wearing of protective glasses. Direct radiation of the eye was used in 119 cases. This method involves real danger of producing cataract unless the most elaborate precautions are taken, and Duke-Elder has only employed it by means of a special ophthalmic radiation lamp, by which the desired rays are filtered off from the rest and focused accurately on the desired depth. Hence the method is only applicable for the cornea, sclera and conjunctiva, and theoretically, perhaps, with a very obliquely directed radiation, the anterior surface of the iris. Actually, of 119 cases so treated, 99 were infections of the cornea and sclerotic, 20 of varying types of conjunctivitis. All types of corneal ulcer did well, but the rays were powerless to influence the resulting scars. A few cases of hypopyon ulcer were treated, mostly along with general light baths. Phlyctenular ulcers do so well with general light baths that it is rarely necessary to employ the local treatment in addition. A few cases of chronic conjunctivitis, chronic blepharitis, and trachoma were treated with benefit. In these cases the reaction is not so easily produced as in the skin, and much longer exposures were necessary. These papers, together with the recent symposium on the subject at the Oxford Ophthalmological Congress, do much to establish the claim of ultra-violet therapy to be a new method of great promise, but they also emphasise the existence of dangers and the necessity of entrusting the administration of the remedy to specially skilled hands alone.

[1] British Journal of Ophthalmology, June and July, 1928.

TRAFFIC IN NARCOTIC DRUGS.

IMPORTANT information in regard to measures for the international control of the traffic in drugs of addiction was vouchsafed in the last report made to the Council of the League of Nations by the Advisory Committee dealing with that subject. It seems probable that the Opium Convention, signed at Geneva in February, 1925, which was intended to provide a central control board and thereby strengthen Chapter III. of The Hague Opium Convention of 1912, may become operative by the end of the present year. The Convention of 1925 was the outcome of the prolonged and acrimonious "Second Conference" at Geneva in 1924–25, from which the American and Chinese delegates felt compelled to withdraw. By its articles it could not come into force until ratified by ten of the Signatory Powers, including seven of the States represented on the Council of the League of which two must have permanent seats on that body. The Advisory Committee, in its last report, stated that 15 States in all had then ratified, including four which are members of the Council, two of them, Great Britain and France, being permanent members. It is anticipated that Canada, Japan, Netherlands, Switzerland, and Roumania will shortly deposit their instruments of ratification, and thus the requisite conditions for putting the Convention of 1925 into operation will have been achieved.

It is hoped by the Advisory Committee that when the Central Control Board, as provided by the Convention is set up, the highly unsatisfactory position of the illicit traffic in dangerous drugs, described as "enormous," will be checked. The report states that—

> "the seizures effected in various countries, particularly in the Far East, still represent considerable quantities; a return—incomplete owing to the inaccuracy of the figures given for certain seizures and relating to a period of about 18 months—shows the striking figures of 2320 kilogrammes for cocaine, 1600 kilogrammes for morphine, and 1150 kilogrammes for heroin, quite apart from a considerable number of seizures of which no precise details are given, but which represent totals perhaps as large as those given above. Moreover, it must not be forgotten that the largest proportion of the narcotics illicitly distributed escapes seizure."

The Committee are at a loss to know the sources from which the illicit traffickers draw their supplies of morphine and of the opium from which the alkaloid is derived.

It will be remembered that M. Zahle, the President of the Conference which drafted the Geneva Convention of 1925, stated that:—

> "if manufacture and transit (of drugs) have been well cared for, the same cannot be claimed for production. The American principle for a limitation of production to medical and scientific purposes, though accepted as a principle by the Advisory Committee on the traffic in opium and the Assembly, has not been included in the Convention as a contractual obligation," and "similarly only a limited progress can be claimed as regards the smoking of opium in certain Pacific countries."

It was omission to deal adequately with these aspects of the problem that led to the withdrawal from the Geneva Conference of the American and Chinese delegates, since they regarded the new agreements as derogating from the spirit and true intent of The Hague Opium Convention of 1912. While it is to be hoped that the expectations of the Advisory Committee, based on the coming into operation of the

1925 Convention, may be realised, the larger question of the production of the raw material of the drugs in question remains to be dealt with, and is complicated by the fact that such producing countries as Turkey and Russia are outside the League, while other producing countries like Persia,[1] Greece, Bolivia, and Peru have not seen their way to supply the information asked for by the Committee.

FRONTIER NURSING IN KENTUCKY.

THE pages of THE LANCET open to-day with an address which Sir Leslie Mackenzie, until recently the Medical Member of the Scottish Board of Health, delivered in circumstances of wide medical importance, as well as of personal interest to the orator. The occasion was the dedication of a hospital and nursing centre, established by the Frontier Nursing Service of Kentucky in the eastern and mountainous regions of the State. The hospital is to serve as a main focus in an organisation for the prevention of disease and the maintenance and promotion of health in certain thinly peopled areas, which present a great similarity to the Highlands and Islands of Scotland in respect of the conditions which have to be met in providing medical service. And while the problems are similar, the methods of dealing with them are also similar, for the excellent reason that Mrs. Mary Breckinridge, the inspiring pioneer of the American work, commenced her task with a personal investigation in Scotland of the way in which the State and individual workers had dealt with the difficulties of the medical service in the Highlands and Islands. This Scottish area, as defined by statute, has a population of but 320,000 scattered over 10 million acres, either isolated by the sea or intersected by mountains and rivers which are impassable in many seasonal conditions. It is true that there is no marine peril connected with the medical service in Kentucky, but the mountains and rivers are there, and so are the scanty and poor inhabitants; and those responsible for the Scottish work may well be proud that their labours have found echo in the far West. We may hope that the activities in America will be attended with less practical difficulties than were those in Scotland through many long years of effort. The difficulties of transport and the needs of the two populations, though varying in detail, may be the same in significance, but the problems present in the scattered regions of the north of Scotland were much complicated by historic, racial and social differences which made any processes of amalgamation, for any purpose however worthy, extremely difficult of accomplishment. These things Sir Leslie Mackenzie sets out with the eloquence of one who not only was the leading spirit in dealing with them, but was born in the middle of them and knows their reality. Because of his intimate and personal knowledge both of the plight in which his humbler fellow-countrymen were, and of the great qualities demanded of those who undertook to minister to their medical needs, Sir Leslie, throughout his whole official career was a valuable servant of the State, of humanity, and of his calling. Therefore, he takes with him into retirement the thanks of all for what he has done, something of which is indicated modestly in his message to the Frontier Nursing Service of Kentucky.

THE MODERN VIEW OF EPILEPSY.

SUPERFICIAL observers are apt to remark that in spite of a vast amount of research we are as far as ever from understanding the cause of epilepsy. Those, however, who have personal experience of research in this disease know that such a statement betokens a lack of appreciation of the nature of the problem to be solved and hence of the means by which its solution will be accomplished. A military metaphor may here prove illuminating. In trench warfare an advance by one side can only occur after the preparation of vast quantities of munitions and a barrage by which the enemy's defences are broken down, but during this essential preliminary stage the position of the combatant lines remains unchanged. In the assault on epilepsy there is reason to hope that we are witnessing the preparatory barrage, and that though the lines at present remain stationary, much valuable work is being accomplished which is an essential preliminary to a true advance of knowledge. Reflections such as these are provoked by Dr. W. G. Lennox and Dr. Stanley Cobb's admirable review [1] of recent work on the condition. The authors confine themselves to the consideration of the mechanism involved in seizures, and the cause and treatment of epilepsy, rightly emphasising at the outset that epilepsy is a symptom and not itself a disease. The various physiological theories of the nature of a convulsion are critically examined, and the conclusion reached that no single theory can hold the field to the exclusion of the others. Considerable space is devoted to the pathological changes in the brain and elsewhere, which have been held to be related to epilepsy, but little stress is laid upon these. Much recent investigation of epilepsy has been biochemical, and about one-third of the review is a survey of this field, dealing especially with the significance of disturbances of acid-base equilibrium. Treatment is discussed, including starvation and a ketogenic diet. The number of references quoted is about 500, and Dr. Lennox and Dr. Cobb bring to bear upon this mass of material a judgment which is both critical and constructive, being based upon a wide personal experience of the clinical, experimental, and biochemical investigation of epilepsy. Their conclusion may be summarised in their own words, "the hope for an understanding of convulsions lies in a knowledge of the factors which affect the reactive capacity of nerve cells," and it is the multiplicity of such factors which renders the problem of epilepsy so complex and necessitates many and varied modes of approach. They are to be congratulated upon a work which will be a necessity to investigators of convulsive states and of practical value to all who have to deal with epileptic patients.

FASCIAL GRAFTING.

THE laws governing the transplantation of tissues are more or less known; it has been proved over and over again that grafting of fibrous tissue, if infection be prevented, is almost certain to be a success. But this knowledge does not seem to have been exploited to the degree its importance warrants. How far-reaching is the use of fascial grafting methods is brought home to the reader of two recent books, by Dr. Ernst König,[2] in Germany, and by Mr. H. C. Orrin,[3] in this country. In human surgery the fascial investment of the thigh has been chiefly used. It is convenient to obtain, and its removal does not lead to any detectable disability; it is of different thicknesses in its different parts, and is thus suited to various purposes; it can get its nourishment from the tissue juices which exude from the bed in which it is placed; it heals in and maintains its own proper structure; it does not shrink, and when subjected to strain it increases in strength. A simple enumeration of the uses to which it has been put will show how many and diverse are the conditions amenable to treatment by fascial grafting. Defects in tendons can be remedied in a way possible with no material which does not become an integral part of the organism; tendon sheaths can be replaced, and deformity resulting from a paralysed muscle can often be in part overcome by a transplant. Fascia can be used as a covering for the ends of bones in an arthroplasty or for winding round a nerve after suture; it is the best material for closing the aperture through which a large hernia has come; it has been used for

[1] See THE LANCET, 1928, i., 457.

[1] Medicine, vol. vii., No. 2, May, 1928. Williams and Wilkins Company, Baltimore. (London agents: Baillière, Tindall and Cox, 8, Henrietta-street, W.C.)

[2] Die körpereigene freie Fascien-Verplanzung. 1928. Berlin: Urban and Schwarzenberg. Pp. 302. M.20.

[3] Fascial Grafting in Principle and Practice. 1928. Edinburgh: Oliver and Boyd. Pp. 92. 7s. 6d.

the fixation of dropped organs and for closing defects in the dura mater, and it can even be grafted into a hole in the wall of a hollow viscus. In some of these operations success is the rule, but in others it cannot be assured as yet. Further study will determine the conditions essential for a favourable outcome; nevertheless, much knowledge has already been gained, and the way has been pointed out for future inquiry into a method which has already proved to be a valuable asset in the hands of the general surgeon.

HEALTH CONGRESS AT PLYMOUTH.

SOME 850 delegates, including representatives of the Home Government, the Governments of India and the Dominions and of foreign countries, and a large number of members, making up a total of about 1500 persons, have assembled for the thirty-ninth Congress of the Royal Sanitary Institute, which bids fair to equal in success any of its predecessors. The Bishop of Plymouth preached at a special service in St. Andrew's Church on Sunday morning and the Rev. T. Wilkinson Riddle at George-street Baptist Chapel in the evening. On Monday the members and delegates were welcomed by the Mayor (Councillor W. H. J. Priest), who later opened the Health Exhibition at the Drill Hall. At 5 P.M. the inaugural meeting of the Congress was held in the Guildhall, when Prof. Bostock Hill, chairman of the council, in inducting the President, the Right Hon. Viscount Astor, referred to the many outstanding services which he had rendered to the advancement of hygiene, notably with respect to the fight against tuberculosis, the improvement of the milk-supply, and maternity and child welfare. Lord Astor's presidential address was an extremely interesting survey of the whole problem, but was much more in that it contained many suggestions and expressions of opinion likely to stimulate discussion when the meetings of the sections and conferences take place. Parliament, he said, had tackled the smoke nuisance in a timid manner, and he hoped some day they would be bold enough to deal with the domestic chimney. Our greater use of water might make it necessary to appoint, even at this late period, conservancy boards for all our rivers. He deplored the effect on birds and possibly on fish from the pollution of the sea by oil from ships. He hoped the time was not distant when the buyer would know whether he was buying raw or pasteurised, clean or dirty milk. He welcomed the more important status given to veterinary hygiene. He referred to the great benefit likely to accrue to industrial hygiene from the work of the International Labour Office at Geneva, the first section of the League of Nation's headquarters to become a going concern. After referring to the lamentably high maternal mortality and morbidity from childbirth, he expressed his views on the right and the wrong kinds of birth control. In urging the imperative need for the preservation of the beauty of the countryside, he suggested that local authorities should plan for new villages and try to keep the intervening spaces open. Practical schemes were possible by which owners of land deprived of building value could be compensated from the increased value of land that is developed. He expressed his disapproval of the recent proposal for the compulsory detention and treatment of men and women suffering from venereal disease. Regulations based on a low conception of human morality could not accelerate physical or moral progress. His concluding note was on the inter-relationship of rest, harmony, and health, and a plea for a daily brief period of rejuvenating peace and constructive silence to counteract the excessive restlessness of modern existence. In moving a vote of thanks to Lord Astor, Mr. Ramsay MacDonald referred to the last portion of the address as "crammed full of shining wisdom." In this period of extraordinary evolution of science and power, it was very necessary that there should be some guiding principles, and that we should take stock and "consider the end of it all."

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCLXXXV.

TREATMENT OF ACUTE AND CHRONIC LARYNGITIS.

ACUTE laryngitis is usually the result of an acute infection of the upper respiratory tract, a "cold," tonsillitis, influenza, or, in children especially, one of the exanthemata, notably measles. It is sometimes traumatic, due to inhalation of dust, irritating gases or fumes, or the accidental swallowing of caustic or very hot fluids; this latter accident occurs when children drink from a kettle.

Acute Laryngitis in Adults.

The treatment of acute laryngitis in adults presents a somewhat different problem from the treatment of a similar condition in infants. The adult patient should be kept in an even temperature, preferably in bed, and should be encouraged to drink large quantities of warm fluids. He may be given drugs to promote perspiration and to ensure rest—for example, aspirin grs. x., Dover's powder grs. viii. at night. Inhalations of steam impregnated with tinct. benzoin co., pine oil, or eucalyptus oil, every three or four hours for a quarter of an hour will be most useful. Abstinence from alcohol and smoking should be enjoined. Rest of the voice is important. Should cough be a prominent symptom a mixture containing small doses of heroin may be given. The attack usually subsides in a few days; the voice becomes normal, cough and secretion disappear. In rare cases œdema of the tissues over the arytenoid cartilages and of the aryepiglottic folds occurs. This results in dyspnœa of variable degree; it may be so severe as to demand tracheotomy. Should such a complication occur it is well to give antistreptococcal serum (25 c.cm.) subcutaneously, and a further dose the next day. Scarification of the œdematous areas has been advocated.

Acute Laryngitis in Infants.

Owing to the relatively small glottis, acute laryngitis in infants is apt to be more serious than in adults. Inspiratory obstruction is especially to be feared. It is essential to exclude diphtheria as the cause in a case of acute laryngitis. Diphtheria of the larynx is almost invariably accompanied by diphtheria of the pharynx, and will show itself by the presence of the typical greyish-white membrane on the tonsils and on the anterior pillars of the fauces or uvula; in all cases of doubt swabs should be taken from the pharynx. If the clinical examination give rise even to suspicion of diphtheria, the case must be given the appropriate dose of antidiphtheritic serum—for a child of 6, 8000 units, for a child of 12, 10,000 units—without waiting for the bacteriological report.

The general principles of the treatment outlined above must be adhered to for catarrhal laryngitis. Rest in bed in an even temperature is important, and since the child may not be able to inhale, a steam kettle should be used. Perhaps the most useful drug for children is chloral. It is of value mainly in ensuring rest, physical and mental, and in allaying the alarm that stridor produces; often merely keeping a child drowsy will enable tracheotomy to be avoided. Inhalation of oxygen through a nasal tube will be helpful. On the other hand, tracheotomy must not be too long postponed, since the child's heart will not tolerate too long the strain of dyspnœa; the patient's colour, the amount of "sucking-in," and the pulse must be considered in deciding on the necessity for tracheotomy or intubation.

Another disease that may be mistaken for laryngitis is laryngismus stridulus; this condition is one seen in rickety children, often associated with adenoids; attacks come on suddenly, generally

at night, when the child wakes in distress with inspiratory crowing. The history of previous attacks, the absence of local pharyngeal signs of inflammation, and the type of child will help in arriving at a diagnosis. Retropharyngeal abscess, especially if low down at the level of the epiglottis, gives rise to dyspnœa; inspection with a good light from a forehead mirror or better, palpation with the finger will reveal a swelling of the pharyngeal wall and decide the diagnosis.

Recurrent Cases.

Should acute catarrhal laryngitis recur, predisposing factors must be sought in the upper respiratory tract and, if possible, removed. Any cause of nasal obstruction, especially a deflected septum, large middle turbinals or adenoids should be excluded; also foci of infection, suppuration in the accessory nasal sinuses, and inflamed adenoids or tonsils.

Chronic Laryngitis.

Chronic laryngitis may be the result of attacks of acute laryngitis; in this case it is all the more important to search for and remove the predisposing causes enumerated above. Treatment of the condition itself is partly general and partly local. Rest of the voice is essential. Faulty methods of voice production in singers or speakers should be corrected, and abstinence from alcohol and tobacco enjoined. A mixture containing potassium iodid grs. iii., pot. nitrate grs. x., oxymel ʒii., tinc. camp. co. ℥xxx., and extract ipecacuanha liq. ℥i. is useful. Locally, in established cases, painting the cords with a solution of zinc chloride (grs. xv. or grs. xx. to ʒi.) daily might be tried. In all cases of chronic laryngitis it is essential to exclude the possibility of tubercle by expert examination of the chest and sputum.

Syphilis as a cause must be excluded by a Wassermann test.

Atrophic Rhinitis.—There are one or two varieties of chronic laryngitis which call for special treatment—for example, that due to or secondary to atrophic rhinitis. Even vigorous treatment of the nose, set out below, may fail to cure the laryngeal disease, but should be patiently undertaken; the nose is to be syringed twice daily by means of a Higginson's syringe with a pint of normal saline, to which is added ʒss. of carbolic acid 1 in 20—this will wash away crusts and keep the nasal passages clean.

Singer's nodules consist of small projections from the edges of the vocal cords at the junction of the anterior and middle thirds. Over-use or mis-use of the voice may be the cause, and must therefore be corrected. Failing this the nodes may be touched with the galvano cautery; this can be done by means of a specially shaped cautery point after painting the larynx with cocaine.

Pachydermia laryngis is a very resistant form of chronic laryngitis, in which there are projections in the posterior commissure or posterior parts of the cords. Removal of these projections has been practised in various ways with poor result. Recently, however, a degree of success has been obtained by the judicious use of diathermy (Kisch); under chloroform anæsthesia two or three punctures are made into the projections with a fine diathermy needle, and very considerable improvement has followed.

Tuberculous laryngitis is always a serious complication of phthisis, and the prognosis grave. Strict silence over a period up to three months will cure slight cases, when combined with general open-air treatment. More serious advanced cases may be arrested by the same means. Should the lung affection clear up local treatment of laryngeal swellings by galvano-cautery puncture under local anæsthesia is very useful. Advanced cases, in which pain is the prominent symptom, must be treated symptomatically by means of local insufflation of orthoform and anæsthesia.

W. M. MOLLISON, C.B.E., M.Chir.,
Surgeon-in-Charge, Ear and Throat Department, Guy's Hospital.

Special Articles.

ON THE NEED FOR STANDARDISATION IN CLINICAL PATHOLOGY.

The Opening Address to the Association of British Pathologists.

BY SIR THOMAS HORDER, BART., M.D. LOND.

DOUBT has been expressed in certain quarters as to the need for this Association. I have myself no doubts whatever on this score. In every branch of medicine there must of necessity be an academic side and a practical side. In anatomy, in physiology, in physics, in chemistry, there are men working out particular problems of an academic kind which, though they have a possible bearing, direct or indirect, upon the diagnosis and the treatment of disease, yet are conceived in a purely academic spirit and are pursued for their own sake and not as direct aids to the prevention or the cure of disease. It is so also in pathology. I suppose we are all members of the Pathological Society of Great Britain and Ireland, and are interested in the more abstruse problems that chiefly form the business of that body. But the doctor in charge of the patient could get very little pathological help in the conduct of his cases were he dependent directly upon the activities of that Society, however energetic these may be. There needs a special acquaintance with the particular aspects of disease, and experience of the material derived from the patient and how best to deal with it, in order to supply that important information which supplements clinical medicine and makes it a whole, rather than a part, of the disease-picture. Clinical pathology requires that the objectives constantly kept in mind are the diagnosis and the treatment of the diseased patient. Here, too, time is the essence of the contract. Pure research may be followed leisurely; indeed, to follow it in any other way than deliberately and slowly is to invite failure. Clinical pathology demands promptness and concentration towards an immediate practical end; the individual's health, perhaps life, is at stake, and this puts a limit to contemplativeness and abstraction. It is the application of pathological principles to practical medicine—it is not the discovery of those principles themselves—that we are concerned with.

The Unity of Pathology.

As to the importance of clinical pathology in our work as doctors it is no longer necessary to emphasise this. Time was when it was very necessary, and I am pleased to think that insistence upon the fact that the recent developments of medicine have been very largely in the direction of examining materials derived from the patient, rather than examination of the patient himself, is the fact to which I owe the honour of addressing you. This insistence, and the equal emphasis put upon the importance of preventing a divorce between pathology and clinical medicine, cover most of the small contributions which I personally can claim towards the progress of our science and art.

You will see, therefore, how reasonable it is that I should welcome the formation of this particular Association, consisting as it does of a body of men whose work lies very largely in this direction and—I speak quite deliberately—whose livelihood depends upon the important contributions made by them in their routine occupation towards the elucidation of the problem of the patient's disease and his treatment. I am quite certain that the Society has a great field, and I predict for it a very successful future.

Inasmuch as we are really all of us both clinicians *and* pathologists in spirit, though not in deed, I want to say a few things concerning matters that

affect both sides of that science which we study from two different angles. I refer to the science of Pathology. For it must not be forgotten that Pathology remains the science of disease, and to study it without coming a great deal into contact with the patient in whom the disease is being expressed, is to deal with only one set of data and to leave an equally important set unconsidered. I like to preach the unity of pathological processes, because there are still some who speak and act as though the whole thing can be seen and dealt with, either in the laboratory or at the bedside, whereas it requires a study of both aspects of the problem to achieve a satisfactory view.

The Doctor's Brief to the Pathologist.

For this reason it is of great importance that you should get as full a brief as possible from the doctor concerning the clinical features of the case in which help is asked. For the present unsatisfactory position in regard to this desideratum both parties are a little to blame. One fact which tends to obstruct this very necessary liaison is the existence of laboratories in which the personal element as between doctor and pathologist is quite eliminated. Materials are dumped in these places much as coals are dumped at our houses. I supposed such places are necessary; anyway they seem to have come to stay. I do not patronise them myself, because I am fortunate enough to be in frequent daily touch with colleagues working in pathological laboratories. But I am quite convinced, even apart from such facilities as I and all of us in large centres possess, that the commercialising of this part of our work is as bad for the patient and for us as it would be if clinical medicine were itself commercialised. When this matter is considered by the Association it might be well to hear the views of some practitioners. There is, by the way, another matter of policy which I suppose you will be discussing, and that is the vexed question of the supply of such therapeutic agents as vaccines from hospital centres. This is a large subject, and merits very full consideration before taking up a definite position. But I have no doubt that the Council, and the Association generally, realises the great importance of maintaining all the best traditions of our profession, and that they can be trusted to do this in connexion with these and with allied matters.

Again and again we see the futility of pathological work, and conclusions drawn from this, when it is a thing quite detached from the clinical aspects of the case. We are so familiar with this fact that to quote instances is superfluous. Recently a patient brought me her blood report. After detailing the figures and certain other observations the report stated that "this is most probably an anæmia of the Addisonian type in spite of the high Hb and low C.I. This group comprises P.A., sprue, and bothriocephalus anæmia. The eosinophilia, consisting of young eosinophils, makes the diagnosis of the last named tempting, though unlikely." Now as a matter of fact the patient had had her spleen removed six months ago, and was, at the time of this count, suffering from a severe attack of urticaria. Both of these facts were, of course, of the utmost significance, and in face of them the valiant efforts at explaining the blood picture became pathetically ludicrous when one saw the patient—a plethoric-looking woman with a red face, who has never been out of England.

This struggle to get farther than the data of the examination admit should be resisted, whether it be as regards diagnosis, or prognosis, or treatment. And since I have embarked upon the matter of pathological reports, with which, after all, my contact with clinical pathology is chiefly concerned in these days, I may as well say a few more things about them now they are in my mind.

The Logic of the Report.

It cannot too often be iterated that no amount of negative investigations ever establishes a positive diagnosis. At the most a negative report gives presumptive evidence against a certain condition or disease. In simple cases such as (say) the absence of a demonstration of T.B. in sputa, or of gonococci in urethral pus, we know how illogical it is to conclude that phthisis or gonorrhœa, respectively, is not present. Yet a more illogical conclusion is now and again perpetrated in the face of a set of negative data, more illogical because the tests conducted are relative tests and not absolute ones. I have more than once drawn attention to the occurrence of well-marked cases of typhoid and paratyphoid in which agglutinations are completely absent, and where the pathologist reports that this negative point excludes these diseases. Of course this is not so. But it not seldom happens that blood cultures, urine cultures, and even stool cultures also prove negative in such cases. When this is so, even pathologists of great experience are prone to consider themselves justified in excluding this group of infections, thus contravening a logical principle of a most primitive kind. The explanation of these cases is not at present forthcoming. It looks as though the present technique, thorough though it is, is not quite suited to them in some way. However this may be, I do, and not at all infrequently, see cases in which the clinical evidence of typhoid or paratyphoid—and I am often unable on clinical grounds to distinguish these infections with any degree of certainty—is quite indisputable; a definite incubation period, an ingravescent pyrexia, a relatively infrequent pulse-ratio, headache, epistaxis, enlarged spleen, leucopenia, patulous belly, rose-spots, defervescence by lysis, and even one or two relapses; yet the serum agglutination, and the most careful blood and stool cultures, may fail to yield any positive data. I have at home two pathological reports concerning such cases in which the sentence occurs: "Whatever this disease is, it is not in the T.A.B. group."

I am speaking on this point rather fully because it illustrates a principle to which I want to draw attention. There is in the minds of some pathologists an idea, never perhaps so baldly defined as I am now defining it, yet receiving frequent practical application, that facts ascertained in the laboratory have a different and a more trustworthy value than facts ascertained at the bedside. This seems to me to indicate lack of clear thinking. If a fact be clearly established it matters not in which sphere of observation it is found; nothing can make it less, or more, a fact. We all realise, of course, that the clinical expressions of disease are more difficult to interpret than those revealing themselves to the more exact methods of the laboratory, but there are fallacies of a special kind in laboratory work, and there is need for forbearance in the use of the microscope and the test-tube, just as much as there is in the use of clinical methods. In the last resort we are all reduced to the exercise of our own judgment and our reason, and we are all equally prone to fall victims to authority and our own preconceived ideas. In proportion as we do fall victims to these things the complexities of disease are certain, sooner or later, to humiliate us, and bring us back to fundamental principles.

The Final Test is the Patient.

What is the final test in all such difficulties of reasoning and experience? It must be the patient, of course, and what eventually happens to him. And only by maintaining a close liaison between clinical medicine and pathology can these doubts be settled. We are familiar with the expression "pathology as a help to clinical medicine." I was once bold enough to read a paper upon "Clinical Medicine as a Help to Pathology," and I should still like to commend this thought to the members of the British Pathologists' Association. There are still not enough consultations between clinicians and patho'ogists, and this refers both to hospital and to private practice. The bedrock of our work is the post-mortem room. It is there that our vanities get the shocks that are so good for them, but it is also there, I am glad to say, that our efforts get their best encouragement. We should see to it

that we all keep in close touch with post-mortem facilities.

Prolixity Confuses.

The prolixity of pathological reports is sometimes very confusing to the practitioner. He finds it difficult to distinguish between a mass of technique which is described in detail and the conclusions pertinent to the case. Perhaps I ought not to say that some reports that come my way seem to be written with a view to impressing the practitioner with the thoroughness of the laboratory work done, but this conclusion is at times hard to escape. The practitioner has confidence in the particular pathologist concerned or he would not invite his help; having confidence in him there is really no need to be told exactly how the material was dealt with at the bench, how dilutions were made, what stains were used, or how late into the night the pathologist sat up searching for some suspected microbe. Of course whenever a method, such as the use of a particular stain, or a special medium, has differential values, this should find a place in the report. I refer rather to matters that have only, as it were, domestic interest. I will couple with this type of report that other type, even more likely to give the practitioner mental indigestion, in which the non-essentials and the essentials are thrown together indiscriminately, or in which certain findings, the significance of which is at present quite unknown, are placed on a par with others the meaning of which *is* known. A good number of these reports are sent to me, or are shown to me, to be edited. I am asked what it all amounts to. When the wheat is sifted from the chaff there is very often left an exceedingly brief report, often entirely negative in respect of the paticular case.

The Premature Personal Bias.

This state of affairs is not seldom due to the fact that pathologists confuse the issue in the practitioner's mind by introducing matters which relate to particular researches of their own. And they do not make it clear, perhaps, that such things are still in the realm of research, and not in the realm of recognised facts. In other words, questions which should be brought before their colleagues of the academic body to which I have referred, and fought out there, are submitted to the ill-chosen judgment and very limited pathological knowledge of a doctor engaged in general practice. This seems to me to be inadvisable. It does not further the aims of the research, and it certainly confuses the issue in respect of the particular patient. Worse than this, after a time the pathologist comes to believe that a frequent reference to his pet idea really has proved his thesis to be of practical value, so that he begins to weave it into his laboratory routine as though it were generally accepted. I think there should certainly be as much forbearance exercised in this direction in pathology as in clinical medicine, especially in view of the fact that the reliance of the public upon methods of precision is so pathetically complete. If a man tells me that he knows my patient's liver is enlarged because he has employed a novel method of examination by which to reach this conclusion, I expect him first to have made good in regard to his thesis by a monograph brought before his colleagues in a suitable place, with the necessary healthy criticisms levelled at it, and that it shall have emerged as a recognised addition to clinical medicine. Otherwise I cannot, in the patient's interest, be responsible for accepting his statement. Surely the same sort of process should take place in respect of clinical pathology. And that clinical medicine does abound in all manner of ill-digested, and ill-assimilated, so-called methods is no reason why pathology should be similarly encumbered.

At present it is so encumbered. There are men who seem to be laws unto themselves in this respect; so that I can often tell who is the author of a report when it is read to me, because of the inclusion of one or more of these at present unaccepted criteria. I must not particularise, because that would be invidious. But it seems to me that just here is a very important part of this Society's work. In the title of my paper this evening I have used the word "standardisation," because I could not think of a better word, and, anyway, it sufficiently expresses my meaning. Of course I do not mean that everybody should make his report, or the technique which leads to it, follow the same stereotyped plan; that would be to stultify individual effort and individual genius. There is a personal equation in these things, I am glad to say, as in all others. One man will extract twice as much information as another from the same material, and present his data with twice as much lucidity. But I should like to plead for some greater uniformity in methods, in nomenclature, and in the criteria to be generally accepted in clinical pathology. Herein, as I say, there lies a great deal of very useful work for your Association.

The Pathologist's Brief to the Doctor.

I would begin this standardisation by teaching the practitioner exactly what it is by way of material that you want him to send you. And how best to obtain, how best to preserve and pack, and how best to forward this material to you. There will then be some degree of uniformity at this end of the investigation. There is still a great deal to be done in regard to blood examinations in this respect, and especially in regard to absolute cell counts and blood cultures. Of course, it is far better that the pathologist should obtain his own specimens first hand, and this should be encouraged whenever possible. But, unfortunately, it is not always practicable to proceed in this ideal manner; distance and expense make it somewhat prohibitive. When this is so the pathologist should be very explicit about his instructions and should provide the doctor with the necessary facilities—appropriate bottles, pipettes, tubes, slides, and so forth.

In the case of stools one frequently sees very divergent reports in the same case, because of the widely varying conditions in which the specimens are taken; in one instance a piece of mucus is carefully selected and forwarded quickly; in another the pathologist receives a fragment of dried-up fæces which has taken quite a long time to reach him. There is still insufficient attention paid to the importance of urine being obtained by catheter; in women this is, of course, a vital necessity whenever bacteriological investigations are required. Doctors should be urged to pass the catheters themselves for this purpose; they generally leave the matter to a nurse, and she too often adopts the stupid method of performing this little operation by touch and not by sight, which is "walking by faith" with a vengeance on most occasions. The importance of filming sputa in respiratory diseases is a point to which I have often drawn attention. Most practitioners are unaware of the valuable information which the pathologist can give him from the examination of two or three films freshly and carefully made, especially in acute respiratory infections.

Biopsy should be performed much more often than it is. This refers especially to obscure cases of glandular enlargement. A point of importance here is that the gland removed under local anæsthesia be carefully chosen. The doctor, if left to himself, too often removes a small, hard, isolated gland, and this as often yields histological change that are residual only—fibrosis and changes that are common to more than one sort of infection. The best gland to remove is often a larger and softer gland, perhaps one of a group—one that promises to show active and specific histological features, and perhaps yield positive bacteriological results.

In many reports some comment should be made as to the nature of the material from the point of view of its likelihood to give helpful results. This is so in the tissues just mentioned. But it applies also to sputa and to other things. To report the absence of T.B. in material that is chiefly saliva, or chiefly blood, has quite a different significance from a negative report in this respect obtained by the examination of a muco-purulent or caseous specimen. To us this is

all very obvious; but it is not always obvious to many men who have not had opportunities for pathological work. When test-meals are given and the gastric contents are removed for analysis, a definite technique should be employed which follows a given standard as nearly as possible. Any special difficulty encountered should be noted, so that the test may be repeated, or caution entered as to the interpretation of the results.

Need for Standardisation in Methods.

When it comes to laboratory methods employed, a plea may again be urged for more standardisation. To speak of the bacteriology of the stools again, I feel that clinical pathology has hardly begun its work. The amount of confusion at present existing is very great, and for this reason hundreds of reports are quite useless. There is the question of the dilution of the stool, upon which quantitative results almost entirely depend. There is the question of the culture media used. There is the question of the time allowed for culture. Lastly, there is the question of the criteria of pathogenicity. I am aware, of course, of the present state of flux in regard to our knowledge of both the coliform and the streptococcal groups. But it seems to me to be far better and more helpful, during this state of half-knowledge, that the report should only record data which are co-related to established facts than that they should deal with debatable matters. Let me mention two instances, both of them having to do with pathogenicity. There is the question of "late lactose fermenters." I take it we are not yet in possession of enough facts to justify us in formulating a group of coliform organisms of certain pathogenic value under this heading. If we are not, I do not think a reference to these—unless it be accompanied by an explanatory note—is of service in practice. But if we are, then it is highly desirable that a definite time standard of the group should be employed by all pathologists—whether 48 hours or three days, or whatever a society like this determines for the time being. I see a good many reports, in which the term "serum-resisting coliform organisms" is used. But the connotation of the phrase is left very much to the imagination of the practitioner; he is often told that the presence of organisms justify this expression, is an indication for the use of a vaccine; but is there consensus of opinion that the reaction hinted at is proof of pathogenicity, and, if so, what are the limits of such reaction within which the use of antigen is really thought advisable?

These are only a few of the questions which have occurred to me in connexion with this subject. As you proceed with your work others will doubtless arise.

MEMORIAL FUND TO SIR DAWSON WILLIAMS.

SINCE the last list of subscribers was published in these pages, subscriptions have been received from the following:—

Dr. H. Adams and members of the Tyneside Branch of the B.M.A.; Dr. G. C. Anderson. Dr. J. Longheed Baskin (Thame). Dr. Ronald Canti (London); Dr. Cunningham (Whitley Bay). Dr. Douglas (St. Andrews). Dr. J. P. Gabb (Guildford). Dr. Phyllis Hall (North Shields). Dr. Herbert Jones (Bigbury-on-Sea). Lt.-Col. J. R. Lord (Epsom); C. L. Leipoldt, F.R.C.S. (South Africa). W. Harrison Martindale, Esq.; Dr. D. Martin (North Shields); Dr. J. Murray (North Shields). Dr. J. A. Nixon (Clifton); Mrs. D. G. C. Nixon (Clifton); Dr. C. Nelson (Earsdon). Dr. Rawson (Whitley Bay). Maj.-Gen. J. B. Smith, I.M.S. (ret.); Dr. H. Sainsbury (London). Dr. A. K. Towers (Wallsend-on-Tyne).

The Fund is now closed. The total number of subscribers is 400, and the total amount subscribed is £885 14*s*.

DARLINGTON GENERAL HOSPITAL.—The annual report states that the resources of the hospital were last year more severely taxed than ever, and it will have to be extended at a cost of close upon £50,000. Practically the whole of the resident staff have had to be lodged in premises separate from the hospital.

INTERNATIONAL CONFERENCE ON CANCER.

JULY 16TH–20TH, 1928.

THE International Conference on Cancer, convened by the British Empire Cancer Campaign, was opened on Monday last, July 16th, when His Majesty the King received the delegates from foreign countries and British Dominions at Buckingham Palace in the afternoon.

International Delegates.

Austria.—Prof. Hans Finsterer (Vienna); Dr. Carl Fleischmann (Vienna); Dr. B. Lipschutz (Vienna).

Bavaria.—Prof. F. Voltz (Munich); Prof. E. H. Zweifel (Munich).

Belgium.—Dr. Max Cheval (Brussels); Prof. A. P. Dustin (Brussels); Prof. J. Maisin (Louvain); Dr. Neuman (Brussels); Prof. Nobele (Ghent); Dr. Felix Sluys (Brussels).

China.—Dr. John Anderson (Hong-Kong).

Denmark.—Dr. Fridtjof Bang (Copenhagen); Prof. S. A. Gammeltoft (Copenhagen).

France.—Prof. Leon Berard (Lyons); Prof. Borrel (Strasbourg); Prof. Pierre Delbet (Paris); Prof. Henri Hartmann (Paris); Dr. F. Humbert, Mr. T. B. Kittredge, and Dr. C. Lillingston (League of Red Cross Societies); Dr. Lacassagne (Radium Institute); Dr. Georges Loewy (Paris); Dr. L. Mallet (Tenon Hospital); Dr. Proust (Beaujon Hospital); Dr. C. Regaud (Radium Institute); Prof. Gustave Roussy (Paris).

Germany.—Prof. Robert Bierich (Hamburg); Prof. F. Blumenthal (Cancer Institute, Berlin); Prof. Rhoda Erdmann (Berlin); Prof. L. Grebe (Bonn); Prof. Halberstaedter (Berlin); Dr. Hans Holfelder (Frankfort); Prof. Herman Holthusen (Hamburg); Prof. Jüngling (Stuttgart); Prof. Keysser (Berlin); Prof. Lahm (Chemnitz); Dr. Rostoski (Dresden); Prof. Schmorl (Dresden); Prof. Teutschlaender (Institute of Experimental Cancer Research, Heidelberg); Prof. Herman Wintz (Erlangen).

Holland.—Prof. H. T. Deelman (Groningen); Prof. William DeVries (Amsterdam); Dr. N. M. Josephus Jitta (Dutch Sanitary Council); Prof. J. Rotgans (Amsterdam); Prof. A. H. M. J. Van Rooy (Amsterdam); Dr. S. N. Waterman (Amsterdam).

Italy.—Prof. R. Alessandri (Rome); Prof. Raffaele Bastianelli (Italian League for Control of Cancer); Prof. Fichera (Ministry of Home Affairs); Prof. Pentimalli (Perugia).

Japan.—Dr. K. Itchikawa (Sapporo); Prof. Mataro Nagayo (Tokio).

Norway.—Prof. K. Brandt (Oslo); Dr. M. Haaland (Bergen).

Poland.—Prof. L. Paszkiewicz (Warsaw).

Portugal.—Prof. Custodio Cabeca (Lisbon).

Roumania.—Dr. Dumitresco-Mante (Bucharest); Dr. D. Mezincesco (Bucharest).

Sicily.—Prof. Ascoli (Catania).

Switzerland.—Dr. L. Carozzi (Geneva); Prof. Paul Clairmont (Zurich); Prof. du Bois (Geneva); Prof. A. Pittard (Geneva); Dr. Rajchman (League of Nations); Dr. Tomanek (League of Nations Cancer Commission).

United States of America.—Dr. Gustav Bucky (New York); Dr. Montrose Burrows (Washington); Dr. William B. Coley (Cornell); Prof. William Duane (Harvard); Prof. James Ewing (Cornell); Dr. William P. Healy (Memorial Hospital, New York); Dr. I. Seth Hirsch (New York); Dr. L. Hoffman (Prudential Insurance Company); Dr. Edward B. Krumbhaar (Philadelphia); Dr. Burton J. Lee (Cornell); Dr. William C. MacCarthy (Mayo Clinic); Dr. Franklin Martin (College of Surgeons); Dr. Joseph Muir (New York); Dr. James B. Murphy (Rockefeller Institute); Dr. Pfahler (University of Pennsylvania); Dr. Douglas Quick (Memorial Hospital, New York); Dr. Stanley P. Reimann (Lankenau Hospital, Philadelphia); Dr. William Seifriz (University of Pennsylvania); Dr. Channing Simmons (Harvard); Dr. Burton T. Simpson (New York State Institute for Study of Malignant Diseases); Miss Maud Slye (Chicago); Dr. George A. Soper (Society for Control of Cancer); Dr. Frank Underhill (Yale); Dr. E. G. C. Williams (Danville); Prof. Francis C. Wood (Columbia).

Dominion Delegates.

Australia.—Dr. C. B. Blackburn (Sydney); Dr. St. J. W. Dansey (Sydney); Dr. L. M. McKillop (Queensland); Dr. C. L. Park (Commonwealth); Dr. Julian Smith (Melbourne).

Canada.—Dr. E. Gendreau (Montreal); Dr. Duncan Graham (Toronto); Dr. G. E. Richards (Toronto); Dr. Harold W. Wookey (Toronto).

India.—Prof. R. B. R. N. Bhatia (Lucknow); Maj.-Gen. B. H. Deare (Calcutta); Dr. H. M. Masina (Bombay); Mrs. R. Young (Delhi).

New Zealand.—Dr. Andrew Muir Begg (Otago); the Hon. W E. Collins (New Zealand).

Singapore.—Dr. J. C. Tull (King Edward VII College).

South Africa.—Dr. R. B. Denison (Univ. of South Africa); Dr. C. Louis Leipoldt (Univ. of Capetown); Mr. W. Welchman (Univ. of the Witwatersrand).

The King's Reply to the Address.

In the course of his reply to the address presented by Sir John Bland-Sutton, His Majesty said:—

"I note, with interest, that your object is research both into the cure and causes of cancer. No doubt, in the last resort, the discovery of the cause is the only certain and absolute means of cure. But I am glad that you have not ignored the practical side of the problem. Remembering the thousands of sufferers from cancer, I feel that if your discussions lead to advance in diagnosis, treatment, or even palliation of the disease, this Conference will have justified itself and earned the gratitude of mankind."

TUESDAY, JULY 17TH.

At the Royal Society of Medicine on Tuesday morning the SECRETARY read a letter of welcome from H.R.H. the Duke of York, and Sir JOHN BLAND-SUTTON, the President, said that students of nature recognised in the animal kingdom an innate rhythm which caused bees to swarm and animals to congregate. This rhythm had brought together to-day a hive of able men, all interested in a disease which, according to the lay press, threatened to exterminate civilisation. Out of this world-wide swarming of experts Sir John hoped that some valuable help would come. He welcomed especially the delegates who had come long distances and from overseas to assist in the conquest of cancer.

Lord DAWSON OF PENN presided at the discussion on

THE ÆTIOLOGY OF CANCER,

and emphasised the magnitude of the problem and the patience necessary for even the smallest advance. The discussion was opened by Prof. J. EWING (New York), who pointed out that two distinct problems must be considered: the exciting factor or causal genesis and the nature of the tumour process or formal genesis. Knowledge of the former was comprehensive and at times almost final, and the knowledge had proved fruitful both practically and theoretically. The other problem had made little progress, despite the modern weapons of biology, biophysics, and biochemistry; it seemed to await substantial advances in general science. The problems of the nature of cancer and of growth in general were probably identical. The exciting factors acted with predisposing causes, of which chronic irritation of any kind was the most significant. Some irritants excited a slowly progressive process which might not reach the stage of cancer for many years, and minute amounts might be sufficient. Bacterial causes were less well-defined than chemical and mechanical, but the process excited by the tubercle bacillus, might progress of its own momentum and gradually acquire neoplastic properties with complete elimination of the bacillus. Precancerous changes showed every transition stage from normal inflammatory to neoplastic overgrowth, strongly suggesting that the forces at work were merely the intrinsic powers of the cell. The changes were not, however, invariably present. The factors predisposing to irritation were tissue abnormalities and heredity. The idea of dedifferentiation of adult cells was unwarranted, and Hannsemann's conception of anaplasia was more applicable to malignant cells. The hereditary element seemed to be dominant in some forms of cancer and recessive in others, and was a structural or physiological peculiarity of the organs predisposing them to cancerous reaction.

The best explanation of malignant growth was the theory of cell autonomy, but this did not account for the persistent growth over long periods and the capacity for independent existence in metastases. The soundest field of modern research dealt with growth-stimulating substances in embryonic and tumour tissue.

Cancer a Multiple Disease.

The theory of a universal cancer parasite must be ruled out for lack of evidence, but micro-organisms might act as irritants. General physiology might throw more light on cancer than the detailed biochemical processes. That malignant growth was always essentially the same in its physical, chemical, and physiological relations was an unwarranted assumption, and studies aiming to solve the whole problem at one stroke were destined to fail.

Dr. F. BLUMENTHAL (Berlin) said that the cancer cell was a cell with new chemical properties which differed only quantitatively and not qualitatively from those of normal and embryonic cells. The totality of these changes led to the specific capacity of transmitting these properties to their posterity. Cancer stimuli proceeded by way of an inflammatory stage with increased cell division and regenerative processes; after this stage the cancer cell acted autonomously without stimulus. The stimulus could not be a universal cancer producer. Special and incidental cancer parasites were only significant in the pre-cancerous stage, and then only if they displayed a definite metabolism or acted as carriers of a cancer agent. This agent was probably a cellular product which, on the decay of cancer cells, was taken up by macrophages, so that they became cancer cells or transmitted the agent to others. This agent was therefore infective and could adhere to parasites inside the tumours and penetrate into healthy cells. It might be something like the bacteriophage; it might be a catalyst or an enzyme. Perhaps it originated in the monocytes in the spleen.

Prof. A. LEITCH (London) said that a similar tumour might be produced by quite dissimilar substances, and very dissimilar tumours might be produced by one agent. Experimental tumour production was always a slow process; it was not the age of the subject that mattered but the time of exposure to the noxious agent. In the early stages no morphological change could be detected, but the cell undergoing cancerisation might be said to be "accumulating growth substance." Some adult cells had entirely lost their growth substance; they could not regenerate and never formed tumours, but the majority retained a certain amount, and under sufficient stimulus the regeneration reaction passed into proliferation. Gye's claim to have isolated this growth substance as a virus could no longer be upheld, but it was possible to induce the filterable fowl tumour in the absence of a virus, and herein lay hope of future developments. This tumour was near enough to a sarcoma to suggest that the "growth substance" might be within the range of experimental investigation.

Dr. A. BORREL (Strasbourg) gave a lantern demonstration of his method of studying cancer cells in cover-glass cultivations stained by the methods used for ultra-microscopic viruses. They showed a remarkable density of coloration and development of the mitochondrial threads, filaments, and straight rods, sinking into an indefinite stained granulation spot which might be a symbiotic microbial spot. Between the cells were sometimes seen granulations like those of molluscum contagiosum. All the cancers resulting from parasites, scalds, X rays, syphilitic lesions, &c., appeared in a cellular system which he called the neuro-tropho-pigmentary system, in which all the parasites concerned lived and grew. The "cancer age" corresponded with the whitening of the hair, when the system became a phagocytic system causing the sclerosis and degeneration of old age. All the predisposing causes of cancer had an

elective irritant action on the tropho-pigmentary system.

Prof. H. T. DEELMAN (Groningen) described the post-mortem findings in a patient who had died of pneumonia with a cancer of the pharynx appearing two years after operation for buccal epithelioma. The manner of growth of the pharyngeal tumour showed that a gradual centrifugal change of epithelium into cancer cells must have taken place. The case could only be explained on the old conception of inductive growth. It was possible to imagine some process similar to that of the trephones which played a part in the healing of wounds. A fruitful field for investigation would be this influence from cell to cell as displayed in leukoplakic epithelium.

The Filterable Agent in Chicken Tumours.

Dr. J. B. MURPHY (New York) said that the real nature of the neoplastic "agent" was at last emerging. Two striking facts indicated that we had to deal with endogenous chemical substances rather than with extrinsic living viruses; these were the high degree of selectivity and the specificity of the types produced. The chicken-tumour agent was remarkably resistant to ultra-violet light and gave evidence of forming a chemical union with tissues of susceptible animals. Dr. Murphy described experiments to determine the nature of the tumour-inducing agents. The major portion of the resulting purified fraction seemed to consist of a nucleo-protein; it gave a uniform Feulgen reaction of the thymonucleic acid group and produced tumours in fowls with great regularity. It was impossible to believe that this fraction could carry through all its precipitations any living organism or virus, and its enzyme-nature seemed to be established. By similar technique a similar agent producing the typical tumour, transplantable in 90 per cent. of fowls, had been isolated from such tissues as the healthy testicles of normal fowls.

Metabolism and Cancer.

Dr. J. MAISIN (Louvain) described experiments on the relation of metabolic disturbances and the appearance of experimental cancers. It had been found that copper and magnesium in suitable doses might delay the progress of cancer and diminish the percentage of metastases; and that nitrate of ionium, injected in large doses before tar-applications, reduced the time before the appearance of cancer and markedly increased the percentage of metastases. This salt also prevented the regression of tar cancers and transformed fowl embryomata into huge polymorphic-celled sarcomata. An albuminous extract of chick embryo accelerated cancer formation, while lecithins and nucleins from blood or chick embryo retarded it. The liver diet of Whipple and Minot and Murphy definitely accelerated the production of tar cancer. Ionium seemed to be capable of destroying vitamin A and modifying cholesterinæmia and glycæmia in rabbits.

Prof. RHODA ERDMANN (Berlin) described experiments showing tumour development in rats taking a diet over-rich in vitamins B and D. The process was one of constant change of the respiratory quotients of the body fluids. First of all only cells which grew with a low quotient multiplied, and formed endothelial and reticular irregularities; then, by a rise of quotient, the cells isolated by these irregularities had a chance to multiply. and so malignant growth might appear. Heart muscle cultivated (*a*) in the plasma of cancerous rats, and (*b*) in the plasma of rats fed on B- and D- deficient diets showed "excess fermentation" in both cases.

Prof. J. MCINTOSH (London) argued for the virus theory of cancer, and described work on the Rous tumour. He was convinced that the filtrates used were cell free and behaved in exactly the same way as filterable viruses.

Prof. TEUTSCHLÆNDER (Heidelberg) said that three equally important factors coöperated proportionately in the ætiology of cancer: the exogenous agent, the local and general disposition, and the exposition. If disposition preponderated, any stimulus might produce cancer; exogenous noxious agents only produced cancer in a healthy organism through pre-cancer stages, which were the expression of grades of disposition gradually created by the quasi-specific agents. Quasi-specific carcinogenic stimuli not only elicited cancer in a suitably disposed organism, but also created the necessary disposition in a healthy organism. Endogenous substances might have a similar action to that of the exogenous, the diversity and variability of which, and their varied results, proved that they were not the immediate causes. There must be some specific factor, which was undoubtedly endogenous and probably of ferment nature. The macrophage doctrine of this factor was not, however, satisfactory for carcinoma. The factor had been shown to be formed by chemical irritation in embryonal or embryonalised cells which were specially sensitive or sensitised to growth stimuli. The moment of origin of this factor was the critical moment; up till then the "pre-cancerous" state would last. Its formation was preceded by an increase in the permeability of the cell membrane, with consequent alteration in the ionic equilibrium and calcium-potassium coefficients. The problem was a problem of metabolism. "Factors of exposition" were all agents that afforded an opportunity for the action of exogenous stimuli, and might be governed by mode of life, occupation, or condition. From the point of view of practical prophylaxis the exposition was the most important factor and should be more carefully studied.

Prof. R. BIERICH (Hamburg) described the influence of lactic acid, which was produced in greater quantities in tumour tissues than in normal, and was not immediately removed. Hence it suffocated cells with normal respiratory processes, and only those independent of oxygen could grow. It achieved such a concentration that it dissolved neighbouring cells and so caused malignant invasion.

Prof. PROUST (Paris) said that the best hypothesis to explain the phenomena was that of a cell alteration which allowed penetration by cytotropic viruses. Normally these viruses circulated in the blood in a state of adsorption or attached to corpuscles.

THE RELATIVE VALUES OF SURGERY AND RADIATION IN TREATMENT.

Prof. C. REGAUD (Paris) opened this discussion. He said that improved therapeutic results were due to advances in technique and knowledge of the use of short wave-lengths. Tumours varied considerably in their sensitivity to irradiation. "Epidermoid epitheliomata" were very sensitive, and could be cured selectively by doses which did not produce extensive radio-necrosis and which left the general tissues almost unaffected. They were the only epithelial cancers cured by radiation almost as a routine. Primary breast cancer was sufficiently sensitive to be cured, but the wide extent and the involvement of the blood-vessels, beside other reasons, made the treatment of election extensive amputation with axillary clearance. Rectal cancers were very radio-resistant; the rectal mucosa was almost as vulnerable as the neoplasm, and the anus gave a poor access. External radiation was useless and internal radiation uncertain. Extirpation was best, or failing that, colostomy, to rest the intestine and check infection of the cancer. Preliminary radiation probably did not affect the result, but rays gave a passing relief in the painful stage. Adenocarcinomata of the uterus, like other glandular cancers, were habitually incurable by selective short-wave radiation. The reasons for these differences in sensitivity were histophysiological; they depended upon the activity and rhythm of the divisions and on the secretory function. The healthy cervico-vaginal epidermis was very sensitive, but its destruction was soon repaired. The mucosa of the mouth, however, being constantly in use, was liable to become infected through denudation.

Cancer of the Cervix Uteri.

Dr. MALCOLM DONALDSON said that the difficulty of estimating the relative values of the two measures lay largely in the absence of reliable figures. Most surgeons were not interested in averages, but in individual patients, and the number of hospitals with follow-up departments was lamentably small. A further difficulty was that of comparison, of knowing which cases were "operable." Standards of cure varied; the five-year rate was not universal, and operability percentages were often calculated on the flimsiest evidence. Certain authorities had, however, obtained valuable results from onerous sifting of the evidence—e.g., Dr. Janet Lane-Claypon in this country, and Heyman, of Stockholm,[1] who gave the five-year survival rate of 3659 hysterectomies as 35·6 per cent., and of 145 cases treated by radiation at the Radiumhemmet as 46·2 per cent. The two treatments were probably equally efficacious in operable cases. Nevertheless the initial mortality from the surgical method was at least 10 per cent., but that from radiation was nil. The operation laid a patient up for two months; the irradiation kept them from work for a fortnight only, and was practically painless, so that patients were not nearly so afraid of it, and sought advice earlier. As a palliative measure in advanced cases it surpassed everything else, and it was bound ultimately to replace excision.

Dr. A. LACASSAGNE (Paris) said that the four factors governing the results of radiation in uterine cancer were the extent of the disease, the quality of the treatment, the histology of the tumour, and the associated infection. They were extremely variable, and the essential condition of success was correct technique. When this was satisfied, the chances of cure of an epitheloma were practically the same whatever the local extent of the disease or its histological variety. This did not, of course, apply to adenocarcinomata. The frequency of associated infections necessitating suspension of the treatment, and of local anatomical changes interfering with it, increased with the extent of the growth.

Dr. W. P. HEALY (New York) analysed a series of 224 cases, and showed slides demonstrating his classification of epidermoid carcinoma of the cervix into three groups according to their degree of anaplasia, which corresponded closely to their malignancy and radiosensitivity. The success of radiation depended on the promptness of the treatment and the sensitivity of the tumour; surgical success depended on early diagnosis and a low degree of malignancy. Radiation gave better results than surgery in carcinoma of the cervix, without the operative mortality.

Dr. MAX CHEVAL (Brussels) described his method of irradiating deep-seated tumours by means of a projection apparatus containing four grammes of radium element. This was applied over large fields in preference to the multifocus method. The very penetrating γ rays caused no disturbance of the general health nor anæmia, wherever they were applied. Thirty-five patients with tumours of the larynx and base of the tongue had been successfully treated, and no necrosis was observed. Large fields would supersede other methods as extended operation had superseded parsimonious excisions. Good results had also been obtained on tumours in other parts of the body, but unfortunately no statistics were yet available.

Dr. E. H. ZWEIFEL (Munich) showed tables of collected statistics of the results of X ray and radium treatment of cancer of the uterus. The percentage of cures (five years or more) in a series of 3770 was 16·8, which corresponded roughly with the surgical results. In 1629 inoperable cases, however, the percentage of cures was 11·3. Combined operation and radiation should be practised more often; radiation was valuable both before and after excision.

[1] Acta Radiol., 1927, viii., 363.

Dr. J. MUIR (New York) gave an account of the evolution of the platinum radon seed, which was especially useful for inaccessible lesions.

Mr. COMYNS BERKELEY summarised the results of 616 cases operated upon by himself and Mr. Victor Bonney. The combined immediate mortality was 17 per cent. A surgeon's operability-rate must in fairness be calculated on all the patients he ever saw, in private practice as well as in hospital, and in wards other than his own. The rush of patients to the Middlesex Hospital had made an accurate calculation impossible, but his approximate rate now was only a little lower than the 63·5 per cent. of the early years during which he had used the radical operation. The mortality-rate was a matter of luck; he had had 60 cases without a death and then 9 deaths out of 18; 52 per cent. of his cases had been in Group III., the "query operable" group of continental surgeons.

Of his 616 cases, 276 had had carcinomatous and 340 non-carcinomatous glands. The immediate mortality in the former group was 20·6 per cent., as against 12 per cent. in the latter. Of 517 patients 240, or 46·4 per cent., survived after three years; of these 36 per cent. had had carcinomatous glands removed. At the end of five years 36·8 per cent. survived, of whom 37·8 per cent. had had carcinomatous glands. Whatever the effect of radium would have been on those without glands, it was a matter for speculation whether the 37·8 per cent. with gland involvement would have been alive to-day.

Mr. VICTOR BONNEY condemned current methods of classification, and pleaded for the simple statement by radiologists of the number of cases treated and the number surviving after five years, to allow comparison between radium and surgery. It might be useful to see if certain classes were benefited by one treatment rather than another. Five years was not long enough, and the minimum period should be ten. His own figures, up to the end of 1926, were 332 cases with an operative mortality of 16 per cent.; 137 had died from recurrence. Of the 100 patients surviving with whom he was in touch, 64 had completed five years. Including six who had died and 17 who had been lost sight of (all after the five years), the total of survivors after that period was 87, and 51 were alive and well after ten years or more.

Cancer of the Rectum.

Sir CHARLES GORDON-WATSON described the method of applying radium from behind by the open perineal route, after removal of the coccyx and division of the junction line of the levatores ani. The vagina was an important auxiliary avenue of approach. An important feature of this method was its attack on the lines of lymphatic spread. For growths extending above the peritoneal reflection the intraperitoneal route was used. Distant radium therapy, from a wax shield moulded to the perineum, would, he thought, prove especially valuable for squamous-celled carcinoma involving the anus. Radiation would probably be found a useful preliminary to excision, and should be used as an accessory to excision to attack glandular enlargement in the lower pelvic meso-colon. Deep X ray therapy on 17 cases of advanced imoperable disease had proved disappointing. Out of Sir Charles's first 15 cases, two were well to-day and one had been cured but had died of intra-peritoneal hæmorrhage on closing the colostomy. Of recent cases several gave promise of cure: time was too short to speak definitely. The radical operation would cure cancer of the rectum in all but the very young, if the patient would consent to colostomy. Until the use of radium became more certain, it was the duty of the profession to advise radical surgery whenever possible, but radium would cure and alleviate more inoperable cases every year.

Mr. W. E. MILES pointed out that direct spread of rectal cancer was comparatively slow; venous spread was so rare as to be negligible, but dissemination through the lymphatic system was all-important. Dissemination by the extra-mural system was much

more widespread and serious than by the intramural, and the upper zone of spread was more important than the middle and lower. Cancer spread from the rectum chiefly through the ischiorectal fat, the levator ani muscles, the pelvic peritoneum, and the pelvic mesocolon. He had abandoned the perineal operation in 1906, because it had failed to include this upward zone, and had substituted the abdomino-perineal method, from which the recurrence mortality had been 30 per cent. only, in over 300 cases. The operation mortality had steadily decreased.

Mr. J. P. LOCKHART-MUMMERY dismissed radium treatment as unsatisfactory. Of 117 private cases treated surgically, the operation mortality had been 3·4 per cent., and in 242 hospital cases it had been 8·6 per cent., although a large number of the patients were over 70. Of 130 operated on over five years ago, 57 had been "cured," 57 had recurred, 8 had died from other causes, and 8 were untraced. Analysis showed that in picked cases the chance of cure was 66·6 per cent., and that even bad cases with intensive involvement were well worth operating upon. Liability to recurrence was extremely variable. Of 50 patients traced beyond the five-years' period, seven had died of recurrence in the sixth year, but none after that.

Dr. DOUGLAS QUICK reported the results of radiation treatment of 710 inoperable and for the most part hopeless cases. Only 150 were living at present; of these 18 were free from disease after 3–8 years, 17 between one and three years, and 10 under a year.

Middlesex Hospital Dinner.

A dinner in honour of the delegates to the Conference was held at the Savoy Hotel on July 17th at the invitation of the Middlesex Hospital and Medical School. Prince Arthur of Connaught presided. After the loyal toasts had been honoured, Mr. E. L. Pearce Gould, the Dean of the Medical School, proposed "Cancer Research." He commemorated the far-sighted generosity of Samuel Whitbread, whose portrait appeared on the menu card and who 136 years ago had given to the Middlesex Hospital its first ward set aside for incurable cases of malignant disease. The success of the Middlesex was due to the uniting under one management of the general hospital, the medical school, and the research laboratory, thus coördinating the whole of cancer research—pathological, biological, radiological, and statistical. The growing sense in the public mind of the seriousness of the problem, the quicker diffusion of knowledge and the higher standard of medical and scientific training, made it possible to prosecute research with good hope of success. Progress might be slow, but those who believed did not make haste. Prof. H. T. Deelman, of Groningen University, replying, described the account he had recently read of a fatal case of malignant disease recorded by a clever physician 300 years ago. Three hundred years hence men would either look on cancer as an historical curiosity or pity us for our ineffectual ways of dealing with it, but they would reap the benefits of our present labours. He paid tribute to English initiative and energy in research. Prof. Raffaele Bastianelli, of the University of Rome, praised the impulse that the Middlesex Hospital had given towards the attack on the cancer problem, and prophesied for it a great future. The health of the Guests was proposed by Mr. W. Sampson Handley and responded to by Prof. C. Regaud, Director of the Institut du Radium in Paris, and Prof. James Ewing, of Cornell University. Sir John Bland-Sutton proposed the health of the Chairman. The party consisted of some 180 hosts and guests and formed a happy occasion for the reunion of workers in many different lands.

SURREY COUNTY HOSPITAL.—This institution, at Guildford, is to be enlarged by the addition of 52 beds. The extension has become necessary largely by reason of the number of motoring accidents.

SHEFFIELD SCHOOL OF MEDICINE.

CENTENARY CELEBRATIONS.

LONG before the University of Sheffield was constituted in 1905 its medical faculty was in existence as the Sheffield School of Medicine, whose history was briefly told in our issue of July 7th (p. 26). The celebrations on July 11th marked the centenary of this school's foundation and testified to its importance in the progress of medical education among the provincial centres of this country.

The proceedings opened in the Firth Hall of the University with an address by the Chancellor, the Marquess of Crewe. In welcoming the delegates from other universities, faculties, and schools of medicine, Lord Crewe mentioned an address delivered 20 years ago by the late Sir Clifford Allbutt, and quoted a phrase which he considered one of the clearest he had ever heard on the function of a university: "the great value of a university education lies in the fact that the students come into contact with and see real research work actually being carried on." This, and the free exchange of ideas which could only occur in an atmosphere of "live work," were, he thought, the most valuable parts of a university education.

Sir Farquhar Buzzard, Regius Professor of Medicine in the University of Oxford, in his reply to the Chancellor, spoke of the fraternal feeling between the old and the new universities, and said that it seemed strange to find a parental university which had only just attained years of discretion watching a member of its school-room celebrate its hundredth birthday. He briefly sketched the early life-struggles of the school.

Sir Humphry Rolleston, Regius Professor of Physic in the University of Cambridge, also referred to the early years of the school. The birth of an institution, like that of an individual, was, he said, by no means painless, but in spite of the difficulties attending its birth, the Sheffield School of Medicine had grown into a very vigorous and flourishing offspring of which the University was justly proud. His own University, he said, owed a great deal to Sheffield, which had sent them that great classic Henry Jackson, and those of his colleagues who knew Henry Jackson wished him to express this feeling and to congratulate the staff of the Sheffield Medical School, whose first whole-time professorship of anatomy was founded by the widow of Arthur Jackson, Henry's brother, to perpetuate the memory of her husband. No history of the Medical School of Sheffield could be written, went on Sir Humphry, without an account of the invaluable services rendered to it by the present professor of medicine, Dr. Arthur J. Hall, who by his unselfish devotion and inspiring influence, poured out for 40 years, had undoubtedly done more for the school than any other single individual. During these 40 years Prof. Hall had held and resigned two previous professorships, those of physiology and pathology, and the invaluable Pathological Museum of the University was almost entirely due to his personal efforts.

Prof. J. Sholto Douglas, Dean of the Faculty of Medicine, then presented to the Chancellor the various delegates, several of whom had been personally connected with the University in its earlier days, notably Sir John Robertson, who was professor of bacteriology, in 1898, and medical officer of health for Sheffield, and Prof. J. S. Macdonald, who was the second whole-time professor of physiology, being appointed in 1902 and holding the chair till 1914, when he returned to Liverpool to succeed Prof. Sherrington. The following delegates were received:—

University of Birmingham, Sir John Robertson; University of Bristol, Prof. Edward Fawcett, F.R.S.; University of Cambridge, Sir Humphry Rolleston; University of Dublin, Prof. Joseph W. Bigger; University of Durham, Sir Thomas Oliver; University of Edinburgh, Prof. G. M. Robertson; University of Glasgow, Prof. John Glaister; National University of Ireland, Patrick Bennett; University of Leeds, Prof. J. Kay Jamieson; University of Liverpool, Prof. J. S. Macdonald, F.R.S.; University of London, Sir Holburt Waring; University of Manchester,

Prof. H. S. Raper; University of Oxford, Prof. Sir Farquhar Buzzard; University of Wales, Prof. A. W. Sheen.

Prof. J. B. Black, the Public Orator, then presented Dr. H. H. Dale, F.R.S., Prof. A. J. Hall, Sir Frederick Gowland Hopkins, F.R.S., and Sir Thomas Lewis, F.R.S., for the honorary degree of Doctor of Science. Having conferred these degrees the Chancellor declared the Congregation closed, and Sir F. Gowland Hopkins offered the thanks of the new graduates for the honour paid to them.

The Faculty's Luncheon.

After the Congregation a luncheon was held at the Royal Victoria Hotel, attended by a large gathering of old Sheffield students. Besides the honorary graduates and delegates, the Lord Mayor and Master Cutler were the guests of the Faculty of Medicine, whose chairman, Prof. A. J. Hall, presided over the gathering.

After the loyal toasts had been honoured the Chancellor of the University rose to propose "the Faculty of Medicine." He referred to the close association between the civic authorities of the city and the University, particularly the Faculty of Medicine, whose members did so much to assist in maintaining the efficiency of the health department of the city both directly and indirectly. He did not agree with those pessimists who said that because the young student of to-day appeared to be frivolous the life of the university was doomed, and he quoted in support of this the following statement, made 60 years ago by Acland with reference to Oxford University: "the Government, trade, laws, are not only being criticised and changed, but the conditions of modern society stimulate nervous excitement, and the late hours and feverish life are undermining our very existence." He was reminded by this of the famous saying about another institution that the more it changed the more it remained the same.

On rising to reply Prof. Hall was greeted with prolonged applause. He spoke of the dinner held a hundred years before at the Tontine Hotel, the only record of which was that Dr. Knight was in the chair and that after dinner "several appropriate speeches were made and the convivialities were kept up till a late hour." To-day, said Dr. Hall, they were met to celebrate not a single stone, but a completed building, not at a small inn where post-horses might be changed, but at a large railway terminus hotel; but in spite of these changes there were the same guests at the two functions, including the Master Cutler, town collector, and the chairman of the infirmary. Prof. Hall was glad to say that one of the earlier teachers of the school, Dr. F. Woolhouse, was still alive, though living in retirement in Sheffield, whilst a student of the first 50 years, Dr. A. Payne, still practised in the city, and had been at the Congregation that morning. The school had been saved in its youth, he thought, by two things, a man and an event, the man being Arthur Jackson and the event the founding of Firth College, to which it subsequently became affiliated. Prof. Hall went on to speak of some of the work done by those who had been teachers there, notably Dr. Christopher Addison, Prof. Arthur Jackson, and Sir John Robertson, who, whilst working in inadequate temporary premises as a pathological laboratory, persuaded the Government to institute the compulsory notification of pulmonary tuberculosis. Finally he referred to a generous gift by Dr. Walter Smith Kay, who has presented a sum of money to the Faculty to provide a yearly gold medal to be given to that student who shall have shown most efficiency in the study of mental diseases, a gift which was very happy, because that Sheffield has just instituted a scheme of out-patient mental clinics at the two large voluntary hospitals in association with the South Yorkshire Mental Hospital.—There were a number of other toasts and replies before the luncheon ended.

Reception at the University.

In the evening a reception and conversazione was held at the University, at which the various faculties had arranged a series of demonstrations and exhibitions. The guests were received in the Firth Hall by Colonel and Mrs. H. K. Stephenson and Sir Henry Hadow, after which they were invited to view the various experiments being conducted in all the University departments. In the Firth Hall itself were exhibited a large number of engravings and paintings of famous medical men of the last 100 years, together with old medical text-books and diplomas. The librarian had also displayed in the Edgar Allen Library the valuable collection of ancient books and manuscripts.

That the whole of the centenary celebrations were a success was due in no small measure to the work of the committees and members of faculties who helped to organise it, as well as to the proverbial fine weather which attends anything of importance to the City of Sheffield.

THE OSLER CLUB.

THE Osler Club was founded recently in Sir William Osler's memory by a group of medical students, as an overt acknowledgment of the inspiration of his writings. The general object of the club is for the study of the history of medicine, and it is intended that a general meeting shall always be held on Osler's birthday. Accordingly, on the evening of July 12th, the club met and entertained a number of guests at a meeting held at Wimpole-street, at the house of Mr. Philip Franklin, whose son, Mr. A. Franklin, is the honorary Secretary of the Club.

Sir Wilmot Herringham addressed the meeting in informal speech, the description of which as an Oslerian Oration he deprecated. He spoke of Osler's love of rare cases, not because they represented extremes of normal physiology, but because their rarity appealed to him as an artist. He told how the young Osler, inspired by the German educational "system," and by what he had seen of practical training in Great Britain, completely altered the outlook of medical teaching in America, and how later he was the prominent advocate for the establishment of clinical units in this country. Dwelling happily on Osler's personal charm and affectionate nature, Sir Wilmot closed a speech of genuine feeling.

Dr. E. O. Meynen, representing the German Ambassador, proposed a vote of thanks to the Orator, and wished particular success to the club as an agency for the promotion of international goodwill, under a patron saint whose name was held in reverent esteem in Germany.

Sir Humphry Rolleston then spoke of "Osler as a Human Being," showing that it was the combination of so many different personalities in one body that made Osler the beloved man that he was. Others present who joined in an Osler symposium were Prof. D. Fraser-Harris, who spoke of him as a physiologist; Dr. H. H. Scott, who dwelt on his merits as a naturalist and comparative pathologist; Dr. Andrew Balfour, who testified to his deep interest in tropical medicine; Sir Squire Sprigge, who regarded him as a great man of letters, Sir Walter Fletcher, Dr. Franklin Martin (President-Elect of the American College of Surgeons), Dr. J. D. Rolleston, and Dr. Ernest Jones.

Among other guests of the club were Sir Thomas Lewis, Dr. Burton Haseltine (Chicago), Mr. Geoffrey Keynes, Mr. S. Damian, Dr. Henry Viets (Boston), and Mr. Philip Franklin, and an opportunity was given to see an exhibition of a selection of Osler's writings, literary and scientific, of biographical appreciations, and of books inspired by him, bearing witness to the many-sided nature of his interests and enthusiasms.

A reproduction of the Sargent crayon sketch of Sir William Osler, lent by the Royal Society of Medicine, occupied the place of honour, and through the kindness of several London librarians, pictures of the Triumvirate of British Medicine—Linacre, Harvey, and Sydenham—were displayed, together with some of Osler's favourite books—Religio Medici. The Anatomy of Melancholy, Lettres de Gui Patin.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Congress of the Royal Institute of Public Health.

THE plans for the Congress of the Royal Institute of Public Health, which is to be held in Dublin from August 15th to 20th, are approaching completion. The honorary President of the Congress is Mr. James McNeill, Governor-General of the Irish Free State, and the President is Mr. Richard Mulcahy, Minister for Local Government and Public Health. The work of the Congress will be carried out in four sections: Section I., State Medicine; Section II., Bacteriology, Pathology, and Biochemistry; Section III., Maternity and Child Welfare, School Medical Inspection; Section IV., Production and Control of Milk and Food. Several interesting discussions have been arranged, and a pleasant programme is also prepared for the entertainment of members of the Congress. It is an additional attraction that the National Athletic Festival of Ireland, the Failteann Games, is to be held in Dublin at the same time.

The Dentists Bill.

The Bill for the registration of dentists in the Irish Free State has at length passed the Senate. There was no difference of opinion on the general principles of the Bill, which follows closely the British Act of 1921, but a great deal of time was spent in consideration of the position of unqualified dentists who had failed to register under the Act of 1921. Many senators appeared, indeed, to be more interested in the protection of unqualified dentists than in the protection of the public. Finally, the Minister in charge of the Bill accepted an amendment, by virtue of which unqualified dentists who have been practising dentistry as their principal means of livelihood since 1921, and were then 21 years of age, will be permitted to register as dentists if they succeed in passing an examination conducted by the Minister or by the Dental Board. It is somewhat of an anomaly that the Dental Board is mentioned, since all other matters concerning the education of dentists are put under the supervision of the Medical Registration Council, and not of the Dental Board.

The Local Authorities Bill.

Mr. De Valera's Bill to amend the Local Authorities Act of 1926 was defeated last week in the Dail on the motion for its second reading. The Government is to be congratulated on its determined opposition to the Bill, which would have gone far to nullify the good effects of the principal Act. It is doubtful, indeed, whether Mr. De Valera's party was very anxious that the Bill should pass, and the genesis of the Bill probably lay in the desire to court popularity with the members of the local authorities who have been "disquieted" by their loss of power and patronage. In the lengthy debates of the past few weeks no single case was quoted in which the present method of making local appointments could fairly be said to be at fault. In regard to medical appointments there cannot be any doubt that the electors have under the present system a much wider range of choice than electors had formerly. Before the Act of 1926 only a few candidates, possessed of local influence, presented themselves as candidates for an appointment. Now that appointments are made on their merits by an independent body the choice lies not among three or four candidates, but among three or four score.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JULY 7TH, 1928.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 182 (last week 219); scarlet fever, 1715; diphtheria, 912; enteric fever, 52; pneumonia, 716; puerperal fever, 45; puerperal pyrexia, 85; cerebro-spinal fever, 14; acute poliomyelitis, 13; acute polio-encephalitis, 2; encephalitis lethargica, 31; continued fever, 1; dysentery, 13; ophthalmia neonatorum, 106. No case of cholera, plague, or typhus fever was notified during the week.

The number of patients in the Infectious Hospitals of the Metropolitan Asylums Board on July 10th–11th was as follows:—Small-pox, 41 under treatment; scarlet fever, 1757; diphtheria, 1889; enteric fever, 16; measles, 448; whooping-cough, 176; puerperal fever, 31 (plus 6 babies); encephalitis lethargica, 66; poliomyelitis, 1; "other diseases," 30. At St. Margaret's Hospital there were 21 babies (plus 16 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox or enteric fever, 33 (7) from measles, 4 (0) from scarlet fever, 21 (4) from whooping-cough, 22 (5) from diphtheria, 51 (7) from diarrhœa and enteritis under two years, and 24 (3) from influenza. The figures in parentheses are those for London itself.

Of the 26 fatal cases of measles outside London 8 were reported from Liverpool and 4 from Newcastle-on-Tyne. Of the 17 cases of whooping-cough outside London 4 were reported from Birmingham. During the same week Glasgow reported 7 deaths from whooping-cough. Liverpool and Salford each reported 3 deaths from diarrhœa.

The number of stillbirths registered during the week was 308 in the great towns (corresponding to a rate of 41 per 1000 births), including 54 in London.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are notified:—Surg.-Capt.: C. T. Baxter to *Vivid* for R.N. Barracks, Devonport. Surg.-Comdrs.: T. J. O'Riordan, lent to N.Z. Division; L. Warren to *Queen Elizabeth*; A. Craig to *Pembroke*, for R.N. Barracks, Chatham, and to *Emerald* (on recommg.); J. D. Keir to *Pembroke*, for R.N. Barracks, Chatham; and A. G. Taylor, to *Cairo* (undated). Surg. Lieut.-Comdrs: J. W. Tighe to *Pembroke*, for Sheerness Dockyard; H. L. Douglas to *Cairo*; and J. E. Clark to *Tamar*. Surg. Lieut.: E. J. Weeks to *Fisgard*. Surg. Lieut. (D.): G. Baker to *Victory*, for R.M. Infirmary, Portsmouth, and to *Victory* for R.N. Barracks.

ROYAL ARMY MEDICAL CORPS.

Maj. W. J. Dunn retires on retd. pay and is granted the rank of Lt.-Col.

The undermentioned Capts. to be Majs.: J. Cullenan, C. O. J. Young (Prov.), and R. N. Phease.

Temp. Lt. P. Weiner relinquishes his commn.

TERRITORIAL ARMY.

J. H. Dunn (late Surg. Sub-Lt. R.N.V.R.), H. Broadbent, F. H. Hollingshead, Lt. R. I. Poston, 2nd Lt. S. G. M. Lynch, and F. Lawrence to be Lts.

ROYAL AIR FORCE.

Flying Officer F. A. O'Connor resigns his short service commission.

INDIAN MEDICAL SERVICE.

Lt.-Col. G. O. F. Sealy retires.

S. Hartley to be Capt. (on prob.).

Bijeta Chaudhuri, Shankar Sahai Bhatnagar, C. F. J. Cropper, K. H. A. Gross, E. V. Claydon, V. H. Sarland, J. Acheson, E. A. O'Connor, J. P. J. Little, P. L. O'Neill, and V. T. J. Lynch to be Lts. (on prob.).

THE NEW BETHLEM HOSPITAL.—Last week Prince Arthur of Connaught, in place of the Duke of Connaught, his father, who has been indisposed, laid the foundation-stone of the new Bethlem Hospital at Monk's Orchard, Shirley, near Croydon. The Lord Mayor of London recently presided at a dinner at the Mansion House in aid of the building fund. The cost of the new buildings will be £450,000, of which £330,000 was available. Towards the balance of £120,000 £42,000 has already been raised; of this sum Sir Charles Wakefield, President of the Royal Hospitals of Bridewell and Bethlem, has given £25,000.

Obituary.

WILLIAM DYSON, M.D. LOND., J.P.

THE death, at Sheffield, on July 9th of Dr. William Dyson in his seventy-ninth year will recall to many members of the medical profession in the Northern Midlands a name which was familiar to them in the later decades of last century and the first half of this.

Born in 1849 at Thurgoland, near Penistone, of an old Wesleyan stock, and educated at the then Wesley College, Sheffield, Dyson's medical studies were carried out at University College Medical School, London, where he was a fellow student with, and a close friend of, Sir Thomas Barlow. At his final M.B. Lond. in 1873, he took honours in medicine and midwifery, afterwards holding resident appointments at University College Hospital. He then returned to practice in Sheffield, being appointed physician to the Sheffield Public Hospital (now the Royal Hospital) in 1876, and resigning this post in 1885 on being elected physician to the General (now Royal) Infirmary, with which institution he remained in active connexion for 27 years. On his retirement in 1912 he was made a consulting physician. During this time his success as a consultant was very great. It began early, continued long, and extended over a wide area. He came to Sheffield just when medical knowledge was undergoing great developments, and as a representative of the new school he soon displaced such few older competitors as there were. For the next 25 years he had the field of medical consulting work almost entirely to himself. It was, writes one of his colleagues, his gentleness and sympathy in dealing with all with whom he came in contact, coupled with an exceptionally thorough knowledge of his professional work, which no doubt gave the key to his wide popularity as a consultant and to his very successful practice.

Dyson took an active interest in the school of medicine, of which he was a member of the teaching staff for many years. When the University College was founded in 1897 he became the first professor of medicine, and on retiring from that post in 1901 was appointed emeritus. On the death of William Favell in 1897 Dyson was appointed a Vice-President of the College in his place, and became the recognised leader of the profession. In the same year he was elected to a vacancy on the Town Trust, of which he remained an honoured member until his death. He was also, as his father before him, on the Commission of the Peace for the West Riding. He took an active interest in the Sheffield Medico-Chirurgical Society the Yorkshire branch of the British Medical Association, and the West Riding Medical Charitable Society, holding office in each. When the British Medical Association proposed to hold its annual meeting in Sheffield in 1908, Dyson was invited unanimously by his colleagues to be nominated as its President. This, however, he was obliged to decline on the grounds of health.

Of a modest and retiring disposition, Dyson was seen at his best in the medical wards which he loved. Successive generations of practitioners and students all testify to his unusual abilities as a clinician and as a teacher. Public work and ceremonial occasions were distasteful to him, and he found the effort of them very great. Always somewhat delicate, writes the same colleague, the strain of his large practice told heavily upon him. Nor is this a matter for surprise. The motor-car had not then come into use. All country work had to be done by train or by carriage, so that a large consulting practice in those days involved very long hours indeed, and much weary time spent in travelling. To those outside the area in which his practice lay, Dyson's name was less well known than his clinical knowledge and skill deserved. The constant calls of practice allowed him little time for writing after a few early contributions to medical literature on cases of special interest. By colleagues and students he was beloved as an intimate friend.

Dr. Dyson retired from practice some years ago. In 1916 the loss of his younger son, William Hubert, an officer in the Queen's Westminster Rifles, who died of wounds in the German lines after leading a raid into the enemy trench, was a blow from which he never recovered. His death occurred only a few days before the centenary of the Medical School, and a fitting tribute to his great services was paid by the Chancellor before the opening of the Degree Congregation at Sheffield University in connexion with its celebration. His widow, a son—Dr. Ernest Andrews Dyson, of Guildford—and a daughter survive him.

Correspondence.

"Audi alteram partem."

INTENSIVE SERUM TREATMENT OF SEVERE DIPHTHERIA.

To the Editor of THE LANCET.

SIR,—We should like to add our testimony to that of Dr. H. S. Banks and Dr. G. McCracken as to the value of *very* large doses of antitoxin in the treatment of the severe toxic case of diphtheria. In this hospital we have been accustomed, for several years past, to employ doses of "concentrated" antitoxin comparable in unitage with those used by Dr. Banks and his colleague. There has hitherto been one important difference between our procedure and theirs—viz., the route of injection. The subcutaneous route is never employed by us; the vast majority of our cases has received antitoxin intramuscularly. In only a minority of the worst class of case a relatively small intravenous injection has been given in addition. Until we were made aware, some few weeks ago, of Dr. Banks's work we had been fairly satisfied with our recovery-rate; but the record of his results has led us to analyse in detail the cases admitted to Little Bromwich Hospital with a diagnosis of diphtheria during the 12 months of 1927, with a view to finding out whether our recovery-rate might be still further improved.

As regards case mortality over the whole series, consideration of the figures which we submit below will, we think, show that there is little to choose between Banks's and McCracken's percentage and ours. But detailed consideration of the case mortality and complication-rate in the different classes of case shows that the employment of large doses of antitoxin by the intravenous route produces results far superior to those obtained, in comparable cases with comparable unitage, when the intramuscular route is employed. During the 12 months ended Dec. 31st, 1927, a gross total of 1842 cases was admitted to this hospital with a diagnosis of diphtheria. From this total has to be subtracted no less than 542 cases which were examples either of so-called "bacteriological diphtheria" or conditions other than diphtheria. This leaves a net total of 1302 cases of indubitable clinical diphtheria. These 1302 cases are analysed in the table.

Comparing Dr. Banks's Classes A and B which received, almost exclusively, large doses of antitoxin intravenously, with our similar classes, it will be seen that his case mortality is 10 per cent. less than ours in Class A and non-existent in Class B (against our 4·6 per cent.); and whereas Dr. Banks dwells upon the rarity of, at any rate, severe pareses, such complications, in our Class A occurred in more than a third of the survivors. In the remaining groups our paresis-rate (all types being included) is satisfactorily low. Of the 19 cases in our Class A who received a small dose of antitoxin intravenously in addition to a large dose intramuscularly, 7 were hopelessly toxic and died within a few hours of admission; 2 others died within 15 days of myocardial failure, and 1 in the fifth week of diaphragmatic paralysis. Of the

survivors 6 recovered without complications; the remaining 3 had palatal paresis only.

This year we have largely increased our intravenous dosage in the Class A case. We now give 40,000 or more units by that route in addition to a following-dose intramuscularly. The results in a consecutive series of 19 cases are as follows: 1 died within a few hours of admission; 3 died later from myocardial degeneration. Of the remainder 14 have recovered

Analysis of 1302 Cases of Indubitable Clinical Diphtheria.

A = Malignant or severely toxic. B = Moderately toxic. Ci = Moderate. Cii = Mild. D = Laryngeal (purely).

	A.	B.	Ci.	Cii.	D.	Total.
Cases	142	87	76	975	22	1302
% cases in each group	10·9	6·6	5·8	74·8	1·6	
Aver. no. of units of antitoxin ..	I.M. 80,000†	I.M. 50,000	I.M. 32,000	I.M. 8,000–24,000	I.M. 8,000–24,000	
Deaths ..	46	4	1	1	4‡	56
Of these died under 48 hrs.	22	2	—	—	—	
Gross case mortality %	32·4	4·6	1·3	0·1	18	4·3
Case mortality minus 48 hr. deaths	17	2·3	1·3	0·1	18	2·46
Recovery *without* pareses* ..	46 (32·4 %)	66 (75·8 %)	71 (93·4 %)	959 (98·3 %)	18 (100 %)	1,160 (89 %)
Recovery following pareses* ..	50 (35·2 %)	17 (19·6 %)	4 (5·3 %)	15 (1·6 %)	—	86 (6·7 %)

* Percentages calculated on survivors. † Plus I.V. 12,000 in 19 cases. ‡ All broncho-pneumonia.

with nothing more serious than slight palatal paresis and one after palatal and pharyngeal paresis of greater severity. Until it comes about that a preventible disease is prevented, it is some satisfaction to know that the large dose of antitoxin given intravenously is capable of obviating at least some of the tragedies which otherwise must occur.

We should like to congratulate Dr. Banks and Dr. McCracken upon their results.

We are, Sir, yours faithfully,

E. H. R. HARRIES.
W. M. MACFARLANE.

City Hospital, Little Bromwich, Birmingham, July 11th, 1928.

RADIOTHERAPY OF CANCER.

To the Editor of THE LANCET.

SIR,—In your issue of July 7th (p. 34) there is a short description of the findings of the subcommission of experts charged by the Cancer Commission of the League of Nations with the study of radiotherapy of cancer, at its preliminary meetings on June 18th and 19th, under the presidency of Prof. Cl. Regaud. One paragraph reads:—

"On the broader questions relating to the treatment of uterine cancer by radiology the President submitted a series of considerations which, after a general discussion, were adopted by the subcommission as representing the most important directions to which its future discussions should be directed, and on which definite recommendations should be made in due course to the Health Committee with a view to publication. Among these considerations were: 1. Propaganda among doctors and the general public in order to ensure the early discovery and early and correct treatment of cancer of the uterus. 2. Increase in the number of consultation centres. 3. Organisation of centres for microscopic analysis in order to ensure early diagnoses. 4. Recommendations for the organisation of the correct treatment of the disease. 5. Recommendations for the radio-therapeutical equipment of clinics. 6. Disadvantages of out-patient treatment. 7. Recommendations for the compilation of reliable statistics. 8. Recommendations for special scientific research."

I should like, with your permission, to draw attention to the fact that on May 14th last I sent you a contribution on radium therapy in which almost identical suggestions were embodied. These suggestions of mine were:—

1. Large hospitals with many cases of sufferers from carcinoma or sarcoma should engage in research and treatment by radium and radio-active substances.

2. Owing to scarcity and the danger of supply being at least temporarily exhausted, or the market price altered by increased demand, small hospitals, where the radium would lie idle for periods, should not be encouraged, and suitable cases should be referred to large centres. If needs be, the patients' fares and maintenance might be paid, as in Sweden. A small quantity of expensive radium in any case is useless, and cannot be applied without expert technical guidance.

3. These large radium centres would link up throughout the country and deal with the cancer plague territorially—each to be a centre for treatment, research, and teaching, with post-graduate and student courses—not only in radium therapy, but also as anticancer centres for investigations from every aspect of the whole problem, with sociological, pathological, biological, medical, surgical and radio-therapeutic measures, all being carried on by team methods.

4. Frequent opportunities should be made for free intercourse and discussion on new methods between all anticancer centres, with opportunities to see the best work of other countries, with interchange, as necessary, of working members of the staffs.

5. Statistics of results, with exact technique, to be kept, compared, and published for the benefit of other investigators.

6. No effort should be spared to obtain the attendance of patients when in an early stage. With the fear of operation reduced, this should soon be an easy matter, subject to proper enlightenment and encouragement of the public through the publicity of the Ministry of Health, the public health authorities, and the private practitioner, whose coöperation is most essential to allay the dread of sufferers who shrink from the idea of the operating table, and to hearten them to seek treatment voluntarily at the earliest moment by the newest scientific methods, painlessly applied.

My great interest in this matter has been stimulated from the reason that, although I have been brought up for the greater part of my life in surgical operating theatres, within the last few months I have been so strikingly impressed by recent results of radium treatment that I feel most strongly on the question.

I am, Sir, yours faithfully,

SPENCER MORT.

North Middlesex Hospital, Upper Edmonton, July 10th, 1928.

MIGRAINE.

To the Editor of THE LANCET.

SIR,—Dr. Purdon Martin, writing in your issue of July 14th (p. 82), is, I think, under a misapprehension as to my point of view. He says that I have regarded migraine as a psychoneurosis. What I have said is that "however skilful the ophthalmic surgeon, and however meticulous the general treatment, although relief from the actual paroxysms may be obtained, *the patient does not become well*, unless the psychological situation is elucidated and adjusted." This statement, empirical though it may be, is, I believe, true; and I do not know many people who will care to contradict it. I do not know if Dr. Purdon Martin was amongst the audience who, last night, listened to an admirable address by Dr. Seif, of Munich, before some of the Adlerian groups in London, but he could hardly have heard a more convincing statement of the reasons for treating, not hypothetical and hypostatised diseases, but *individual patients* whose life and health is disordered. And the fact is that, when the psychological state, as well as the physical errors, of the migrainous is adjusted, the patients get well and keep well. Whether or no this fact implies that "migraine is a psychoneurosis" I do not know, in the absence of a definition of a psychoneurosis. Nor do I know why the suggestion that migraine is a psychoneurosis should seem inadequate to account for such a symptom as ophthalmoplegia. I do not find it more difficult to believe that paroyxsmal ophthalmoplegia should disappear when psychical states are adjusted than I do to believe that diarrhœa, involuntary lacrymation, involuntary micturition, impotentia coeundi, angina

pectoris, "functional" paralysis, hystero-epilepsy, and a hundred other conditions should occur when psychical states are disturbed and disappear when they are adjusted.

I do know this, that some years ago I had ophthalmoplegic migraine of so persistent a nature that several kind and skilful friends begged to be allowed to do something to one of my tendons! I am grateful to them, but much more grateful, on the one hand, to those who insisted on correction of the "organ inferiority"—irregular astigmatism and muscular defect—by glasses, and on the other, to those who helped me to see the psychological error and difficulty. But my position is diametrically opposed to that of those who, regarding "migraine as a psychoneurosis," let it go at that, and (in another direction) to that of those who, while believing migrainous attacks arise "in some way from a functional disorder of the vegetative nervous system," do not inquire what are the psychological difficulties correlated with this disorder. The proof of the pudding is in the eating. Migrainous people, unless they are old, and their attacks have become organised, and their arteries stiff, and their kidneys inadequate, *do get well;* if, that is, in addition to correction of their organ-inferiorities and adjustment of their physiological divagations, investigation and adjustment of their psychological troubles is carried our. Explanations and theories have a secondary place. The thing *works*.

I am, Sir, yours faithfully,

Wimpole-street, W, July 13th,. F. G. CROOKSHANK.

To the Editor of THE LANCET.

SIR,—Dr. Martin's article gives a very comprehensive view of this malady and its suggested treatment from the physical side. Scant attention, however, has been given to migraine as a psychoneurosis. In my experience the migrainous sufferers are usually "thinkers." Much phantasy formation is their pleasure-ground. Their psychical energy remains dammed up rather than expressed in action. The migraine sufferer is usually the prey of his repressed anger, rage, and humiliation, which he turns in towards himself. Migraine ensues when an uncongenial task is to be performed. It is a means of being in the limelight when other means fail. The greatest relief lies in helping the patient to see himself and to make him conscious of his fraudulent trick, which is a means of heightening his own ego-consciousness and his desire for superiority. The energy, when liberated, must be directed into fresh channels of expression. Readjustment is necessary. General measures do help the migraine sufferer, but they do not *cure*. The psychological situation must be cleared up. Dr. F. G. Crookshank, in his little book, gives most valuable information on this tiresome malady.

I am, Sir, yours faithfully,

Harley-street, W., July 14th, 1928. ESTELLE COLE.

DIPHTHERIA CARRIERS.

To the Editor of THE LANCET.

SIR,—Dr. Harvey, in his interesting article in to-day's issue upon the treatment of diphtheria carriers, does not mention the possibility of the bacillus being carried in a tooth cavity. Some thirty odd years ago I saw a boy of between 10 and 12 from Dover. He and his sister had both carried diphtheria. Both had their tonsils and adenoids removed, and the bacilli disappeared from the girl's nose and throat completely, but continued in the boy's throat. I could find nothing abnormal to account for his continuing a carrier, the tonsils and adenoids having been most effectively removed. It occurred to me, however, to search his teeth with a mirror, and I thus discovered a cavity in the posterior face of his left last lower molar, which was completely hidden from ordinary inspection. I suggested searching this cavity, and, if the bacilli were found there, the appropriate treatment of the tooth. My advice was acted upon, the swab gave ample evidence of a nest of diphtheria bacilli, the cavity was cleaned out and filled, and the bacilli disappeared from the mouth within the week, after the boy had been a carrier for six months.

I am, Sir, yours faithfully,

MACLEOD YEARSLEY.

Wimpole-street, W., July 14th, 1928.

ANATOMICAL NOMENCLATURE.

To the Editor of THE LANCET.

SIR,—In your annotation of May 26th under this heading you do me, I believe, an injustice, but that is a detail. The Anatomical Society, at its recent meeting in Manchester, appointed a committee with a view to revision of the Basle Nomenclature (B.N.A.). I beg now through you to offer my services, unofficial, unconditional, whole-hearted, and loyal, in the way of criticism and suggestion only, hoping to be able to indicate how, beginning with the B.N.A. and applying the principles advocated by its own authors, we may evolve such a nomenclature as will win favour and survive solely because of its fitness. In the past I have made many mistakes. I take what comfort I can from the thought that he who makes no mistakes may make nothing else.

I am, Sir, yours faithfully,

Leeds, July 11th, 1928. WM. CUTHBERT MORTON.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Reorganisation of Offices (Scotland) Bill.

IN the House of Lords on July 16th the Reorganisation of Offices (Scotland) Bill was read the second time.

HOUSE OF LORDS.

THURSDAY, JULY 12TH.

Child Destruction Bill.

ON the motion of Lord DARLING the report of amendments to the Child Destruction Bill (formerly the Infanticide Bill) was received and further amendments, mostly of a drafting nature, were agreed to.

On July 16th the Child Destruction Bill was read the third time, and passed.

MONDAY, JULY 16TH.

DOGS ACT (AMENDMENT) BILL.

Lord Banbury's Amendment.

On the motion for the third reading of the Dogs Act (Amendment) Bill, which has already passed the Commons,

Lord BANBURY moved to leave out Clause 2. He said that under the Act of 1906 Clauses 3 and 4 must be read together. Clause 4 was the clause which under this Bill it was proposed to leave out and substitute for it another clause which he (Lord Banbury) proposed to leave out, thus leaving the law in exactly the same position as it was now. Clause 4 of the Act of 1906 said that:—

"Any person who takes possession of a stray dog shall forthwith either return the dog to its owner or give notice in writing to the chief officer of police of the district where the dog was found."

Clause 3 which must be read in conjunction with it said:—

"Where a police officer had reason to believe that any dog found in a highway or place of public resort is a stray dog, he may seize the dog and may detain it until the owner has claimed it and paid all expenses incurred by reason of its detention."

Subsection (5) said:—

"No dog so seized shall be given or sold for the purposes of vivisection."

That was the law as it stood now. In February of this year a Bill was introduced in the House of Commons, the chief object of which was to make owners of dogs liable for injury to poultry. To that he had no objection. But it then went on to repeal Section 4 of the principal Act which he had just read and to substitute this:—

"Any person who takes possession of a stray dog shall forthwith either return the dog to its owner or deliver the dog to a

police officer of the police area in which the dog was found and inform that officer where the dog was found."

The clause further said :—

"A dog which has been delivered to a police officer under this section shall be treated as if it had been seized by that officer in pursuance of Section 3 of this Act."

That was to say that if any dog was seized by a police officer it should be treated in pursuance of the Act of 1906, with the result that no stray dog or lost dog which was taken to the police would be used for the purpose of vivisection. That was the Bill as introduced in the House of Commons, as it passed the second reading in the House of Commons, and as it passed the Committee stage in the House of Commons. On the Report stage, however, an amendment was moved to leave out the clause and insert another one which was in the Bill before their lordships. The effect of that clause was that the protection which existed at the present moment against the use for vivisection purposes of a stray or lost dog was done away with. Under the clause which he proposed to leave out there were two alternatives. A person who found a stray dog had to take it to the police station. If the person did not want to keep the dog the police took possession of it, and they could not sell it for the purposes of vivisection. On the other hand, if the person who found the dog was a person whose object it was to look for stray or lost dogs in order to make money out of them by keeping them for a month and then selling them for the purposes of vivisection what was to prevent him? If a person was not very scrupulous and he found a dog with a collar on it he could remove the collar and throw it away before taking the dog to the police station. In that case the identification of the dog was to a certain extent lost and the profit which the man was going to make was pretty sure. Knowing human nature and bearing in mind a case that occurred not very long ago when two dogs were found in a sack, and another case in which a dog had been taken off the doorstep of its owner, and they were all found at an institution where vivisection was carried on, he ventured to say that it was pretty certain that under this alternative of the law there would be people who would take advantage of it for the purposes which he had suggested. He would prefer if their lordships left out Clause 2, that the clause which was originally in the Bill should be reinserted. But he did not wish to insist upon that if their lordships would only leave out Clause 2. He hoped the House would support him because this was an insidious attempt to obtain all stray or lost dogs for the purposes of vivisection.

Lord Dawson on Vivisection.

Lord DAWSON of PENN said that they had to consider two varieties of dogs. One was the owned dog. Was there any Member of that House who would not take any precaution necessary to preserve the owned dog to its owner? Then there was the stray dog, which wandered about eking out such a living as it could, uncared for, a misery to itself and a danger to the community. The extent of that problem was shown by the fact that each year something like 30,000 stray dogs were destroyed in the City of London alone. Was it not obvious, if there was to be the same provision for both varieties of dogs, that the owned dog would suffer? If they put an embargo on the use of the stray dog for experimental purposes, would they not correspondingly endanger the owned dog? The Bill provided extremely well for that contingency. Its provisions would help in the identification of the owned dog and diminish the chances of mishap. Therefore it deserved the support of that House. It was clear that the object of Lord Banbury was not the protection of the owned dog. Underlying all Lord Banbury's remarks was this, that he was making this an opportunity for a flank attack on the use of dogs for experimentation. He (Lord Dawson) would take up his challenge, for it was clear enough that the question of experimentation on animals stood or fell by the use or not of dogs. Whichever way they approached this question of experimentation on dogs, surrounding it by as much misrepresentation of fact as they would—and there was no subject he knew of which was more misrepresented than this—they always arrived at two aspects of the question. The first one was: Do material advantages accrue to mankind from experimentation on dogs and experimentation on animals in general? The second question, a totally different one, was: Whatever those advantages may be, is it ethically justifiable that mankind should take advantage of them?

The first question, whether material advantages accrued to mankind, was surely a question for those people with skilled knowledge. There was no one else who could give the answer "Yes" or "No." Supposing, for example, that they were building a bridge across a river. They might decide the policy as to whether the bridge should be built or not, but whether the bridge should be built of chrome steel or manganese steel, or whatever the distribution of the stresses should be, would be left to the engineers. The problem of the engineer was nothing in comparison with the problems which arose in connexion with the body and mind of man. He would not trouble their lordships with too much on the question whether man did gain advantages from experiment or not, but there was this remarkable fact. We were accustomed to find experts differing materially, but on this question of experimentation on dogs there was such a consensus of opinion among the medical men of the civilised world that it amounted to a practical unanimity. They had recently had a conference representing every aspect of medicine and surgery, and of the sciences on which medicine and surgery rested. A more representative conference there could not be, and that conference said this to the British nation, that without experimentation on animals medicine and surgery could not carry on. He did not mean that they would not carry on; of course they would do their best; but, intellectually, they would come to stagnation. He would put the matter in another way. Supposing he were asked to find a staff for a hospital of, say, 200 beds in London, and had to find surgeons and physicians of sufficient standing on the one hand, and who would embrace the principles that Lord Banbury advocated. He had to tell the House that he could not find such a staff; it did not exist. That would indicate to the House to what extent medical unanimity prevailed.

The Ethical Aspect.

The honest opponents were those who approached the question from the ethical standpoint. He had in mind the man who said: "Whatever the advantages that accrue to mankind, it is ethically unjustifiable that you should make use of them." He respected that man, provided that he did not himself make use of those remedies in his time of trouble. It was a question for the public. They invited the public to answer that question. It was for them to say "Yes" or "No." If they said "Yes," by all means let them have the legislation which would make all these things illegal. That, at any rate, would be an honest and straightforward course. If, on the other hand, the answer was "No; we do not wish to stop these things," then he said: "For Heaven's sake leave us alone to go on with our work and do not harass us day by day and year by year." He had admitted that the question whether it was ethically justifiable to make use of experiments on animals should be decided by the public, and what was true of the dog was true of other animals. The medical profession told the House, with a real sense of responsibility, that they could not do without dogs—that they could not substitute other animals in every case. Their universal rule was that they never used an animal higher in the scale of creation than was absolutely necessary. They used the lowest animal possible, compatible with doing their best and getting successful results. In order that the public might be in a position to answer the question whether it was ethically justifiable, it would be of some profit if he tried to clear away a few misconceptions. He would take the question of pain. Was it likely that those of them whose upbringing had been in associating with pain from their student days were going to do anything which would needlessly increase pain when their whole careers were spent in assuaging it? They were not likely to be less sensitive than Lord Banbury on the question of inflicting pain. On the contrary, they knew more about it and what it meant. Therefore he would not waste time in dwelling upon any question of the indifference of the medical profession to pain. As to the 30,000 animals that were anæsthetised every year, all they asked was that they should be made use of not only for the benefit of mankind, but for themselves. It must be borne in mind that the large majority of experiments on animals were carried out under anæsthetics, and the dogs and other animals were completely ignorant of what was going on. He would go further than that. He would admit that there were a minority of cases where animals were given diseases in order to aid in the diagnosis of disease in man. He admitted, further, that there were, from time to time, what they called survival experiments. He would tell their lordships exactly what survival experiments meant. A greater part of the treatment of gastro-intestinal disease in modern times depended mainly upon experiment on animals. One of the most distinguished men of modern times was Prof. Pavlov, of Russia. As an example, he would take the case of a man who was going to be short-circuited for duodenal ulcer. They might take his pain and distress and divide them into three parts. There was, first, the stage of anticipation. There was that stage when he had to make up his mind to face the risks to himself and his family, and when he said to himself, "Supposing I do not survive. What is going to happen to me in my profession?" All these agonies of mind far exceeded distress of body. Man had to go through all that, not the animals. The animal had none of that, and he had no power of anticipation whatever. The second stage was that of the actual operation of short-

circuiting. There the man and the animal were on a par. They were both under anæsthesia and both felt nothing. The third stage, in some respects the most distressing of all, was that terrible process of building up the man's health after illness, the time of shock, of convalescence. Let them contrast man and animal there. The man might be weeks and months before he was well. In the case of the animal, what happened? They might have an operation on a dog for short-circuiting and the same day it would be playing about with its owner. In the case of an experiment on a monkey, he had himself seen the animal, within 24 hours, sitting on his perch eating a banana. That horrible process of getting well, of recovering from shock, was entirely unknown to the animal. The fact was that it was a slavery of terms. If they read in the papers that one of their lordships had been vivisected and that his appendix had been removed, they would be distressed and horrified; but if they read that he had been operated upon, they would think nothing of it. There was no difference between the one and the other. What had happened to the animal had happened to the man, but what happened to the man was infinitely greater, tenfold or a hundredfold greater, than what happened to the animal. It was necessary to understand what the implication would be if a measure for suppressing experimentation on animals were passed. It would affect the whole range of medicine—the diseases of the gastro-intestinal tract, typhoid, lockjaw—he could go on with a list which would occupy too much of their attention on an afternoon like that. Much of what we knew about gall-stones, dogs had told us. Take jaundice, including the malignant jaundice of dogs. Whereas at one time a dog stricken with malignant jaundice nearly always died, since the discovery of trypan blue the majority of dogs stricken with this disease were saved. In the investigation of disease that animal had to be used which the particular problem required. For instance for the investigation of infantile paralysis, the monkey was the only animal which it was of use to employ. Again, take the case of tetanus. He would not wish that anybody should repeat the war-time experience what that terrible disease was.

Inconsistency of Antivivisectors.

It was important for people to know the consequences of removing from medicine all these results based on experimentation on animals. They had only got to be understood by the public, and then he had no doubt what the public would say. This result would have happened long ago but for the fact that the propagandists against vivisection were not themselves subject to their own gospel. If a propagandist against vivisection was stricken with any of those diseases, he gave an implicit, if not an explicit, consent to vivisection. If those who were against all experimentation on animals were, in their own persons or in their own families afflicted with disease, did their lordships for one moment suppose that they did not adopt the remedies which were based on experimentation? He could assure them that with few exceptions they did adopt them; and was it to be wondered at? Imagine the crisis of love and life in the balance, the crisis of anxious illness. At such a time the theories of the comfortable armchair gave place to more commonsense and reasonable ideas.

He would not be hard on their inconsistencies. Life would be a drab and dreary business if we were always consistent. If the uses of new drugs could not be worked out on animals, the alternative was to work them out on human beings. Perhaps Lord Banbury would form a band of people of conscientious convictions who would allow the medical profession to work out new drugs on them! When it came to working out new drugs like pituitrin, adrenalin, and digitalin, the question was whether it was better to work them out on animals before they transferred their use to human beings. He would not say anything against inconsistency if in the hour of trouble the philosophy of antivivisection broke down. He would think humanly of that, but what surpassed the limits of tolerance was that these people could get these remedies when they liked, and yet they were constantly disturbing the minds of unknowing and innocent people in our hospitals.

Hospital Difficulties.

All hospitals in this country were up against the difficulty of getting funds at the present time. They made an appeal in their distress and then along came these fanatical people. They put advertisements in the daily press, they inveighed against the hospital, they sent letters to all the subscribers, and they did their best to spoil the appeal for funds. They appealed to the ignorant and the unknowing by misrepresentations which might be called gross, and by that means they were destroying the flow of charitable funds. Yet let one of these propagandists himself be ill and all he had to do was to go to a private doctor and not suffer at all. They might take it that that was the general rule. He would give an example. They had the terrors of lockjaw in the war, when they found people dying of convulsions which could only be described as agonising, because they were convulsions right up to the point of death, and consciousness was preserved up to the point of death. They adopted the plan after most interesting investigations of using a serum against lockjaw. The effect on the mortality from tetanus in the war was that it came down to quite small proportions. Since the war it had been the rule for all well-ordered hospitals to have constantly in stock anti-tetanic serum, because street accidents were brought in from time to time, and it was the rule that directly a street accident was brought in antitetanic serum was injected. That was contrary to the principles of the antivivisectionist. There was a hospital in London where they would not use antitetanic serum. A street accident was brought in and they refused to give the serum and the patient died of lock-jaw. What was more, two other patients subsequently died of lockjaw at this hospital; and they called that hospital a charity! He called it a place for propagandism and nothing more, and he hoped that King Edward's Fund would take note of this episode and would not give that hospital a certificate that it was a charity ready to treat the maimed and the wounded by the best methods known to science at the present time. At the same time as these poor people—the workers, who had no choice where they should be taken—were taken to this hospital, would the governors of the hospital or their children if they got an injury in a street accident go without antitetanic serum? Not at all; they would go home and call in their private doctor and it would be given. The fact was that it was an impossible situation. What it amounted to was that these people were practising their theories on the dog, only this time it was the human dog, and the world suffered thereby. He put it to their lordships that the health of the nation was a momentous matter not to be treated lightly, but to be treated seriously, and not made the playing-ground of vain imaginings, of misguided thought, and he asked the House to reject Lord Banbury's amendment.

Discussion on the Bill.

Lord DANESFORT asked the House not to allow Lord Dawson on an occasion like that to use the debate for the purpose of justifying the vivisection of stray dogs and introducing a totally irrelevant question into the discussion. He would certainly support the amendment.

The Earl of STRADBROKE (Parliamentary Secretary to the Ministry of Agriculture) said the clause under discussion which Lord Banbury desired to eliminate was inserted at the request of and after very long and careful consideration with various associations connected with the protection and care of dogs, and he thought they would agree that the clause as it now stood gave a stray dog a better chance. The societies that came and discussed the question of this clause and agreed upon it were the Royal Society for the Prevention of Cruelty to Animals, the Canine Defence League, the Battersea Home for Lost Dogs, and the Glasgow Dogs Home. Up to the present no objection had been lodged at the Government Department against this clause and therefore it was a surprise that this amendment should have been put down. It was the Government's view that the Bill would be better as it stood.

Lord BANBURY said that though he was against dogs being vivisected he was not an antivivisectionist. He did not raise the question. Having been defeated he had not attempted to bring on the Bill again in the House. If a noble lord wanted to buy a dog in a legitimate way the law allowed him to do so, but it was another thing to say that if he (Lord Banbury) lost his dog it was to be a chance for some person who found it to keep it a month and then sell it for vivisection.

The Marquess of SALISBURY (Lord Privy Seal) opposed the amendment. He said that if Lord Banbury had proposed to replace the clause with another which would have equally achieved his end and perhaps secured the particular view he held on vivisection, that would have been different, but what he did was to eviscerate from the Bill one of its essential clauses without putting anything in its place.

The amendment to omit the clause was rejected by 33 votes to 5. The Bill was read the third time and passed.

HOUSE OF COMMONS.

WEDNESDAY, JULY 11TH.

Coroners Act, 1887, Amendment.

Mr. MORRIS asked leave to bring in a Bill to amend the Coroners Act, 1887. He said that the object of the Bill was to amend Section 4 (3) of the 1887 Act, which related to the power of a coroner's jury to find a verdict of murder against the person accused. Subsection (3) indicated that a coroner's jury had to inquire who the deceased was, how, when, and where the deceased came by his death, and if

he came by his death by murder or manslaughter, the persons, if any, who the jury found had been guilty of such murder or manslaughter. This amending Bill would cut out that part of the subsection with such consequential amendments as might be necessary in the remaining parts of the Act which related to the naming of the person found guilty of murder. The coroner's court was a very ancient court, and in the development of its history it had gradually come to occupy a very different position from that which it hitherto occupied in the administration of justice. The object of putting the provision in the Act originally was that the coroner's court was regarded as providing a collateral security for the prevention of crime. To-day, although a coroner's warrant could commit a person for trial and had the effect of an indictment, and was equivalent to the finding of a Grand Jury at the Assize Court, it was the invariable practice—although it was not necessary in law for the accused person to be brought before a magisterial court—for the magistrate to examine the case and come to a decision whether a prima facie case had been made out. It was not therefore necessary in the present circumstances to have an inquiry, especially under the conditions of examination conducted before the coroner's court. There were very strong objections to the present procedure. The coroner's court was not bound by the rules of evidence. Any evidence could be admitted. He was seeking in this Bill to provide that a coroner's jury should be limited to finding the cause of death alone. The Act of 1926 was unsatisfactory. The position was this: If a person had been arrested during the time of the coroner's inquest on a charge of murder the coroner should then suspend the inquest pending the conclusion of the trial. If the magistrates found there was no prima facie case they had a position where there was no conclusion to the criminal proceedings on indictment and the present law left it still open for the coroner to go on with the inquest and for the jury, notwithstanding the fact that the magistrates had thrown out the case, to find the person guilty of murder. That was a very illogical state of the law and for that reason he had brought in this amending Bill.

Leave to bring in the Bill was granted without a division.

Diagnosis of Small-pox Cases.

Mr. GROVES asked the Minister of Health whether, in view of the fact that the cases of small-pox occurring in London at the present time were so mild as to be hardly distinguishable from chicken-pox, and also of the fact that certain medical men believed they were not small-pox at all but alastrim or a new disease, he would issue fresh regulations permitting medical officers of health to leave them in their own homes and not put the patients to the discomfort and the ratepayers to the expense of having them removed to the small-pox hospital.—Mr. CHAMBERLAIN replied: I am advised that the small-pox now prevalent in this country should not be confused with chicken-pox or some new disease, and in view of the risks to the public health which would be involved by its further spread, I am not prepared to countenance the course suggested by the hon. Member.

THURSDAY, JULY 12TH.

Ex-Service Men and Medical Treatment.

Mr. STEPHEN asked the Minister of Pensions what remedy an ex-Service man had when he was recommended by the Ministry for treatment at home by his panel doctor and the panel doctor certified that treatment by the Ministry was necessary.—Major TRYON replied: Where it had been decided that a case was either not eligible for or did not require such a course of treatment as is provided by the Ministry of Pensions the case would fall to be dealt with under the ordinary arrangements available to insured persons under the National Health Insurance Acts.

Mr. STEPHEN: If the Minister decides that treatment is not possible and the man's panel doctor considers that treatment by the Ministry is necessary what step has the man then to take?

Major TRYON: It is quite clear that the Ministry cannot accept the doctrine that a panel doctor can decide for them. If the man has a grievance against the panel doctor the normal course would be for him to make an application to the insurance committee.

Mr. STEPHEN: But supposing the man has no grievance against his panel doctor; supposing that he considers that the advice of his panel doctor is right, is there not a medical referee whose opinion the Ministry and the panel doctor can be asked to accept? If there is not, will the Minister set up such a referee?

Major TRYON: No, Sir. The ordinary course must be followed. The case would be considered by the doctors of the Ministry of Pensions whose opinions must necessarily decide the action to be taken by the Ministry.

Mr. STEPHEN: Does the Minister say that the doctors of the Ministry must be the final arbiters in spite of the fact that equally eminent or more eminent medical men may say that the man ought to have treatment?

Major TRYON: No, Sir. The point is that the Ministry of Pensions must decide its own policy and not the panel doctor.

Mr. HARRIS: When doctors disagree would it not be possible to have an independent opinion from a specialist, because it is notorious that doctors often differ on medical points?

No further answer was given.

Medical Certification in a Case of Lead Poisoning.

Miss LAWRENCE asked the Secretary of State for the Home Department if his attention had been drawn to the case of Reginald Aubrey Wild, who contracted lead poisoning while working for Messrs. Locke, Lancaster, and W. W. and R. Johnson and Sons, Limited, of Millwall; whether he was aware that on application to the certifying surgeon for a certificate the same was refused, the certifying surgeon being the same doctor that was in the service of the employers; that the medical referee for the district, who formerly was the employer's doctor, had given a decision that the man was suffering from lead poisoning, but that he was not disabled; and whether, seeing that Mr. Wild was an in-patient in the London Hospital, suffering from lead poisoning, from April 20th until May 14th, after receiving a week's notice on April 15th, he would arrange for the man to be examined by a medical referee attached to another district as, until he was certified, no claim could be made for compensation.—Sir WILLIAM JOYNSON-HICKS replied: The decision of the medical referee under the Act is final, and I have no power to intervene in the manner suggested. I am, moreover, satisfied on inquiry that this case has been most carefully and conscientiously dealt with both by the certifying surgeon and by the medical referee, and I strongly deprecate the implication that these gentlemen, both of whom are medical practitioners of high standing, may have been influenced in carrying out their statutory duties by their connexion with these works. The certifying surgeon is responsible in his official capacity for the periodic examination of workers employed in lead processes under the Lead Compounds Regulations; he also, I understand, periodically examines the other workers and examines workmen newly employed, but has no other interest in the firm. The medical referee used to carry out some three years ago the periodic examinations required by the regulations, but he did this under special appointment from the Chief Inspector of Factories, and he was not, I am informed, otherwise engaged by the firm.

Miss LAWRENCE: In view of the fact that the medical referee for the district did not confirm the decision of the certifying surgeon, and that the certifying surgeon is employed in the manner detailed in the question, does not the right hon. gentleman think that some further inquiries should be made?

Sir W. JOYNSON-HICKS: I have made a very careful inquiry into the position of both these medical gentlemen and their connexion with the firm is very slight, and really, as far as the actual certificate of the medical referee is concerned under the Act that is final, and I have no power to intervene.

Mr. T. WILLIAMS: Is the right hon. gentleman aware that injured workmen practically all over the country have little or no confidence in certifying surgeons who are receiving large fees from employers and then acting for those same employers?

Sir W. JOYNSON-HICKS: In this case the suggestion cannot possibly be made. There is no question of a large fee being received from employers. As far as the general statement made by the hon. Member is concerned, I must really ask him to let me have at least a few of the details of these cases and then I will go into the matter at once, as he has made a very serious charge.

Miss LAWRENCE: I want to ask the right hon. gentlemen whether he has considered the conflicting medical opinions in this case and whether, in view of the conflict of medical evidence, it is not possible to arrange for another examination. The first doctor said that the man had lead poisoning, the second doctor said that he had lead poisoning, but was not disabled, and the third doctor, an independent doctor at the hospital, certified him as actually sound. In view of that conflict of medical opinion cannot the right hon. gentleman have another examination?

Sir W. JOYNSON-HICKS: I will get into communication with the third doctor who the hon. lady says is independent, and ask him to let me have a report on the case. (Cheers.)

Removal of Manchester Tuberculosis Clinic.

Sir THOMAS WATTS asked the Minister of Health if his attention had been called to the objections raised by the residents in the Oxford-road district of Manchester to the proposed removal of the tuberculosis clinic from Hardman-street to that district, and what action he intended to

take.—Mr. CHAMBERLAIN replied: The answer to the first part of the question is in the affirmative. I proposed to arrange for a local inquiry before coming to a decision on this proposal.

Mr. HORE-BELISHA: Is it not a fact that in the debate in this House the unanimous view was expressed that this appeal tribunal should be established, and has the hon. and gallant gentleman considered this matter since that debate?

Lieut.-Colonel HEADLAM: I should dispute the fact that the opinion of the House was unanimous on that subject, and it is since that date that the decision has been arrived at.

Commander WILLIAMS asked what was the sickness in respect of which most of these people were invalided out?

Lieut.-Colonel HEADLAM: I cannot say off-hand, but I should say that it was tuberculosis.

Mr. HAYES: Was the matter considered by the Board of Admiralty or by an independent medical board?

Lieut.-Colonel HEADLAM: The Board of Admiralty considered the subject and consulted an independent medical board on the whole subject—not as to the tribunal, of course.

Compulsory Registration of State Nurses.

Mr. ERNEST BROWN asked the Minister of Health if it was the policy of the Government to make State registration compulsory for hospital nurses in Government establishments.—Mr. CHAMBERLAIN replied: The only Government establishment where nurses are employed for which I am responsible is the Rampton State Institution for Mental Defectives. So far as that establishment is concerned the answer to the question is in the negative.

MONDAY, JULY 16TH.

The Rating of Hospitals.

The House considered the Rating and Valuation (Apportionment) Bill on Report.

Mr. HARRIS moved a new clause providing that the expression "hospital hereditaments" should mean a hereditament occupied and used as a hospital, but should not include a hospital run for private profit or gain. He said that the work of the hospitals was an industry which had suffered severely since the war. During the last few years the strain on the voluntary system had been almost at breaking-point. Masses of people were implored to give money to the voluntary hospitals, and then it was handed back to the ratepayer in the form of taxation. Rates on the hospitals were tantamount to a tax on benevolence, on the sick poor, and on medical science.

Mr. CHAMBERLAIN (Minister of Health) pointed out that the Bill was not a plan for reconsidering the whole system with a view to deciding what kind of property might with advantage be relieved of rates. It was a special proposal which the Government were making for the stimulation of industry, and it was a far-fetched suggestion, indeed, to attempt to bring hospitals within the definition of industry. Although he had expressed a certain sympathy in this matter, he did not wish to be taken as having said that he was in favour of any particular scheme for derating hospitals. If the question were to be considered, they could not stop at hospitals. There were other kinds of property for which arguments on similar lines could be properly made, and he did not wish to be taken as having accepted the principle, as he had not given the question that consideration which would be necessary before he expressed a definite opinion. Certainly one recognised that there was a good case for the relief of the voluntary hospital, and with that he must content himself on that occasion. It might be that, on some future occasion, they would have some general scheme which would relieve various classes of property which were rated to-day, and on such a scheme the question of hospitals would properly find a place, but it was not appropriate to discuss it in a Bill designed to find a way to relieve industry.

Sir H. CAUTLEY pointed out that the assessment of the Sussex County Hospital had been put up to ten times what it was before. He hoped that, if he could, the Minister of Health would be able to do something for the hospitals under this Bill, or that he would exert some influence at once to put the provincial hospitals—although it applied also to the London hospitals—on some consistent footing throughout the country. Otherwise a very great number of them would have to shut down, because they could not possibly stand this enormous increase in their assessments.

Mr. GROVES said that if relief could be given to industries, surely the large London hospitals could be assisted. Many of the hospitals had had to close down a number of beds for lack of funds. They ought to make up their minds that the great medical and surgical institutions of the country were industries, because they really were shops wherein the bodies, and sometimes the minds, of the working population were repaired. Hospitals were a necessary adjunct to the industrial life of the community. One sweet thing about the hospitals was that they did not ask what a patient's politics were. In trying to restore people to health they were performing a function which was as essential to the well-being of the country as the work of any industry. He begged the Minister to reconsider his attitude to the amendment.

Mr. E. BROWN said that the amendment was within the scope of the Bill. The great hospitals and infirmaries were vitally linked up with the purposes of industry, and what was true of Glasgow, was true of Edinburgh and Leith, and of all the great cities up and down the country.

Dr. VERNON DAVIES said that he would have been very pleased if he could have accepted the arguments of the Opposition in favour of the amendment, but he could not persuade himself that the Bill was one for the relief of voluntary hospitals. The argument had been used that hospitals might be regarded as productive, in that they helped to produce medical men and nurses. But where was such an argument to stop? They might have relief of rates for theological colleges because they produced clergymen, and for political colleges because they were producing politicians. The question of the relief of hospitals was an entirely different one, and he did not see how it could come under this Bill, much as he would like it to do so, because the hospital question at present was undoubtedly serious. He believed that the Minister of Health had that fact well before him and was as anxious as anyone to deal with it. Attempts had been made to prove that breweries, which were to be relieved of rates, were a prolific cause of work for the hospitals. That might have been so in the past. In the old days it was not an uncommon thing to have patients in the hospitals as the result of alcoholic excess, but it was well known that there had been a great reduction in disease due to such excess. In his student days it was quite a common occurrence to come across cases of what were called "beer drinkers' heart," but at present they were the greatest rarities in clinical medicine. He believed, also, that cases of cirrhosis of the liver were markedly decreasing.

Sir KINGSLEY WOOD (Parliamentary Secretary to the Ministry of Health) asked the House to reject the amendment. He said that the voluntary system so far as the hospitals were concerned was not fading away but was very firmly based. A great measure of the support came from the workers concerned. Everyone would be glad to assist the voluntary system, but they had to consider whether this was an appropriate place to do so. This derating plan was a scheme to help productive industry and, if possible, lessen the burden of necessitous areas. So far as the voluntary hospitals were concerned, the Central Valuation Committee had made some valuable suggestions. If their advice was followed it would do away with many difficulties.

The clause was negatived by 219 votes to 110—majority 109.

TUESDAY, JULY 17TH.

Wireless for Medical Service in Shetland.

Sir ARCHIBALD SINCLAIR asked the Postmaster-General whether experiments in the establishment of communication by wireless between the island of Foula and the mainland of Shetland for medical service purposes had proved to be successful; and if so, whether, in view of the need for the improvement of communication, particularly on the ground of public health, between the island of Stroma and the mainland, the Government would consider making similar arrangements for the installation of wireless telephony on this island.—Sir W. MITCHELL-THOMSON replied: So far as I am aware, no experiments in the establishment of wireless communication between Foula and the mainland for medical purposes have yet taken place; and the second part of the question does not therefore arise.

Woman Lunacy Commissioner in Scotland.

Viscountess ASTOR asked the Secretary of State for Scotland what were the duties allocated to the lady assistant commissioner employed under the General Board of Control for Scotland.—Sir J. GILMOUR replied: The normal duties of the lady deputy commissioner consist of visiting lunatics and mental defectives under guardianship in private dwellings throughout Scotland. Occasionally she inspects lunatic wards of poorhouses.

Royal Commission on Local Government.

Mr. CRAWFURD asked the Minister of Health when the Report of the Royal Commission on Local Government was likely to be presented.—Sir KINGSLEY WOOD replied: It is understood that the Royal Commission hope to present a Report on certain questions within their terms of reference towards the beginning of November.

ENLARGEMENT OF ST. MARY'S HOSPITAL, PADDINGTON.—Lord Iveagh last week opened an extension which includes 60 additional beds and two operating suites, together with many domestic and sanitary improvements. The cost has been £60,000, of which £52,000 has been subscribed.

Medical News.

UNIVERSITY OF OXFORD.—At recent examinations the following candidates were successful in the undermentioned subjects:—

B.M. AND B.CH.

Medicine, Surgery and Obstetrics.—O. A. Beadle, M. V. Bhajekar, W. H. Brown, T. L. Davies, E. R. Holiday, A. J. Leslie-Spinks, J. M. A. Melly, A. E. Porritt, L. T. Ride, H. G. Wells, Florence H. Johnson, and Alice D. K. Peters.

Pathology.—A. D. Bell, T. M. Gledhill, R. D. Harding, H. C. Harley, Eugene Harvey, Francis Hawking, E. R. Holiday, K. N. Irvine, J. M. Lees, A. W. D. Leishman, J. C. Nicholson, N. C. Parfit, A. B. Stokes, R. L. H. Townsend, W. B. Williams, and Ruth Sandeman.

Materia Medica.—H. J. B. Atkins, F. W. Brown, N. P. Bruce, T. M. Davie, R. D. Harding, J. H. Hunt, J. E. Jenkins, C. J. King-Turner, J. C. Leedham-Green, A. W. D. Leishman, R. C. MacKeith, J. N. O'Reilly, R. S. B. Pearson, B. T. Squires, A. B. Stokes, W. S. Tegner, H. A. Treble, H. C. Wadge, Olive M. Capper Johnson, Winifred Mercer, and Elspeth W. Smellie.

Forensic Medicine and Hygiene.—M. V. Bhajekar, George Campbell, B. R. Caygill, R. M. J. Harper, E. R. Holiday, F. G. Parker, H. G. Pritchard, C. R. Salkeld, D. C. Shields, Florence H. Johnson, Caroline E. MacNeice, Alice D. K. Peters, and Joyce Wright.

The Master and Fellows of University College have awarded the Radcliffe Scholarship in Pharmacology to H. J. B. Atkins and J. H. Hunt. The Theodore Williams Scholarship in Pathology has been awarded to Frank Williams.

UNIVERSITY OF CAMBRIDGE.—At recent examinations the following candidates were approved:—

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.

Part II.—Edwin Amarasinghe, Oliver Chance, J. C. Coutts, F. J. Farr, D. L. Greig, D. A. Imrie, Leila K. Keatinge, D. F. Lawson, C. J. R. Morrison, H. C. Pillsbury, B. K. Roy, Tokue Takahashi, Edgar Thorpe, E. J. E. Topham, J. D. H. Wearing, and F. G. Wood.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At the quarterly meeting of the Council held on July 12th Sir Berkeley Moynihan was re-elected President and Prof. W. Hey Groves and Mr. V. Warren Low were elected Vice-Presidents for the ensuing collegiate year. Mr. F. J. Steward, Prof. L. P. Gamgee, Mr. R. G. Hogarth, and Prof. R. E. Kelly, the newly elected members of Council, were introduced, and having made the necessary declarations took their seats in the Council. Mr. D. K. Cassels, M.A., who has been Assistant to the Secretary since 1924, was appointed Assistant Secretary to the College.

The following professors and lecturers were elected for the ensuing year:—

Hunterian Professors.—Sir Arthur Keith, Mr. Arthur H. Evans, Prof. G. E. Gask, Prof. C. A. Pannett, Mr. R. J. M. Love, Mr. C. P. G. Wakeley, and Mr. R. T. Payne.

Arris and Gale Lecturer.—Mr. Henry Albert Harris.

Erasmus Wilson Lecturers.—Mr. T. W. P. Lawrence and Mr. C. E. Shattock.

Arnott Demonstrator.—Sir Arthur Keith.

Diplomas of Member were conferred upon the following who have passed the necessary examinations and have complied with the by-laws: Nellie Brown, Westminster; H. G. Nimbalker, Bombay, Sheffield, and Middlesex.

The diploma of Fellow was also conferred upon J. C. B. Allen, Sydney, Guy's, and St. Bart.'s.

Licences in Dental Surgery were conferred upon the following candidates who have passed the requisite examinations and have complied with the by-laws of the College:—

D. B. Bergh, Guy's; S. Borson, London; D. J. Bull and S. G. Caston, Guy's; R. E. Clarke and Dorothy G. Coutts, King's Coll.; A. H. Crowley and E. M. Douglas, Guy's; D. H. A. Edmondson, Liverpool; W. Foster, Guy's; G. Gilol, Royal Dental; J. W. H. Jones, C. L. Knight, and H. M. Norman, Guy's; W. O'Reilly and D. V. Pandit, Univ. Coll.; H. J. Phillips and R. A. Phillips, Bristol; C. W. Pound, Guy's; R. A. Richardson, Royal Dental; D. E. C. Robertson, Guy's; W. S. Ross, Royal Dental; C. Seller, London; W. H. Shrigley, Guy's; R. S. Taylor, Royal Dental; F. C. Tomlyn, Guy's; F. Trainin and J. N. van der Merwe, Royal Dental; F. W. Walder, Univ. Coll.; W. J. Watson and G. H. S. Weir, Guy's.

The under-mentioned diplomas were conferred (jointly with the Royal College of Physicians) upon the following candidates:—

Diploma in Laryngology and Otology.—J. Acomb, N. Attygalle, H. K. Basu, N. E. H. Box, C. H. Carroll, G. D. Malhoutra, T. G. Millar, A. A. Miller, G. W. Morey, W. J. Robertson, E. M. Steel, D. B. Sutton, and M. R. Wadia.

Diploma in Psychological Medicine.—Norah A. Haworth, R. Levinson, Agnes M. Macgown, J. J. B. Martin, A. Pool, and G. M. Tothill.

UNIVERSITY OF LEEDS.—At recent examinations the following candidates were successful:—

M.D.

A. Cannon, H. Sugare, and Gretta M. Wardle.

FINAL EXAMINATION FOR M.B., CH.B.

Part II.—S. G. Bedford, S. K. Foster, W. Greaves, Dorothy Halstead, P. Hampshire, L. B. Heseltine, C. R. Hiley, H. Hopkinson, J. R. O'Neill, T. L. Owen, N. Pyecroft, Doreen M. Robertshaw, Mary G. Shawe, L. Silman, L. Smith, J. O. Terry, Ivy R. Watson, and J. E. H. West.

Part III.—*L. Brill, *L. B. Heseltine, *J. H. Kahr, *V. P. Squire, C. R. Adgie, D. W. E. Burridge, H. W. Davis, L. Godlove, R. C. Hanson, A. Milner, J. P. O'Donnell, J. R. O'Neill, A. Reichlin, and J. E. H. West.

* Second-class honours.

D.P.H.

H. M. Holt.

FINAL EXAMINATION FOR L.D.S.

Part II.—W. Bedford, B. Taylor, and S. R. Woodcock.

UNIVERSITY OF LIVERPOOL.—At a graduation ceremony on July 7th medical degrees were conferred on candidates whose names appeared in our last issue (p. 100) as having passed the requisite examinations. The Ethel Boyce Fellowship in Gynæcology was awarded to Dr. Gwyneth Griffith; the Robert Gee Fellowship in Human Anatomy to Dr. E. N. Wardle; the J. W. Garrett International Fellowship in Bacteriology to Dr. J. S. Logan; the Holt Fellowship in Pathology to Dr. J. F. Galloway; the Holt Fellowship in Physiology to R. K. Bowes; the Johnston Colonial Fellowship in Biochemistry to Dr. L. Earlam; the Thelwall Thomas Fellowship in Surgical Pathology to Dr. R. Y. Dawbarn; the Samuels Memorial Scholarships to Dr. A. L. Kerr (Surgery) and Dr. M. M. Datnow (Obstetrics and Gynæcology); the John Rankin Fellowship in Anatomy to Dr. J. B. Rushton; the University Graduate Scholarship in Medicine to J. Libman; and the John Rankin Exhibition in Practical Anatomy to W. S. Diggle and T. L. Hughes.

UNIVERSITY OF MANCHESTER.—Dr. G. H. H. Booth has been appointed Demonstrator in Anatomy.—The Council have adopted regulations for the Dr. Robert Angus Smith Scholarship, which has been founded for the encouragement of research in sanitary science. The scholarship will be offered for the first time in June, 1929.

UNIVERSITY OF BELFAST.—The Senate of the Queen's University have appointed Dr. E. B. C. Mayrs to the chair of pharmacology and therapeutics, and Dr. F. M. Allen to be lecturer in materia medica and therapeutics.

INDUSTRIAL WELFARE SOCIETY.—At a lecture conference to be held by this society at Balliol College, Oxford, from Sept. 7th to 11th, an address on Nervous Disease and its Significance in Industry will be given by Dr. Millais Culpin.

NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS.—An anonymous gift of £50,000 has been received by this Association, as a result of which the total sum collected in connexion with a special appeal exceeds £110,000.

The fourteenth annual conference will be held at the B.M.A. House, Tavistock-square, London, W.C., on Oct. 15th and 16th. Sir Arthur Stanley will preside, and the subjects of discussion will include the Occurrence of Tuberculosis among Primitive Peoples and the Principles underlying a Scheme of Antituberculosis Measure in Any Country. A number of Canadian tuberculosis officers visiting Europe will attend the conference and take part in the discussions. The sessions will be open to all persons interested in tuberculosis on payment of a fee. Names should be sent as soon as possible to the secretary, at 1, Gordon-square, London, W.C. 1.

WILLIAM HARVEY AND ABERDEEN.—At the June meeting of the Aberdeen Medico-Chirurgical Society Dr. Thomas Fraser took the chair, and Prof. J. MacWilliam, F.R.S., gave an address entitled "Reflections on Harvey's Work." He laid stress on the profound significance of Harvey's great achievement, not only in its obvious applications of fundamental importance in physiology and medicine, but also for the change which it led to in the general attitude of mind towards the problems of the animal organism, introducing a new spirit and method into the study of their relation to the forces and processes of the external world. Dr. W. Clark Souter read a paper on the visit to Aberdeen of Dr. William Harvey in 1641, when he was made an honorary burgess of the city. Dr. Souter showed a number of lantern slides on this and other Harveian topics, and a series of portraits of Harvey, giving his views on the authenticity and origin of the Harvey portrait in the society's possession, a gift from Sir Walter Farquhar in 1915.

MEMORIAL TO A LEEDS SURGEON.—A bas-relief to the memory of Lieut.-Colonel Harry Littlewood has just been unveiled at Leeds General Infirmary, of which he was surgeon from 1893 to 1921. It has been subscribed for by his colleagues, who have also contributed to the equipment of the instructional block at the infirmary. The portrait represents him in his uniform as administrator of the Second Northern General Hospital at Beckett's Park during the war. Colonel Littlewood had retired when the war broke out, and his war-time labours are believed to have shortened his life.

BIDDULPH GRANGE ORTHOPÆDIC HOSPITAL.—In June, 1924, the Prince of Wales opened Biddulph Grange, in North Staffordshire, as an orthopædic hospital for the county, but within less than a year it had to be closed for lack of financial support. It was subsequently purchased by the Lancashire County Council for a similar purpose, and has just been formally opened. The institution is intended to serve the Manchester area, from which it is no farther distant than if it were in some suitable part of Lancashire itself. There is accommodation for 85 children, and the building can readily be enlarged.

HOSPITALS IN CEYLON.—At present modern hospital facilities in Ceylon are obtainable only at the great Colombo General Hospital of some 700 beds. A committee appointed by the Executive Council of the island, which has been considering the situation, recommends that central hospitals should be established at Kandy, Galle, and seven other out-stations, and that, save in exceptional cases, no small hospitals should be maintained. It is further recommended that there should be an increase in the number of itinerant medical officers so that first-class surgical and medical resources should be available all over the island.

BEIT MEMORIAL FELLOWSHIPS FOR MEDICAL RESEARCH.—At a recent meeting of the trustees Mr. W. G. A. Ormsby-Gore, M.P., Under Secretary of State for the Colonies, and the Earl of Onslow, Under Secretary of State for War, were appointed trustees in place of the late Sir Arthur Shipley, F.R.S., and the late Lord Cave. Sir James Kingston Fowler (hon. secretary) began his report by referring to the election of Dr. David Keilin—who had been the first student to hold successively Junior, Fourth Year, and Senior Beit Fellowships—to be an F.R.S. It was now very difficult, he said, to describe the work of the Fellows on medical and allied sciences in a form intelligible to those not engaged in them; but an exception might be made in the case of Dr. Edward Hindle's research on yellow fever. Dr. Hindle, who was appointed last year to the newly established Beit Fellowship in Tropical Medicine, began work in January, and "in the short period which has since elapsed has obtained results in the course of a research on yellow fever which give good ground for the belief that a vaccine has been discovered which will afford protection against that disease." He has shown "that a vaccine prepared from the livers of infected monkeys will protect a monkey from the effects of a dose of the virus ten thousand times as great as the fatal dose, and the monkey continues to be healthy and lively." It has still to be ascertained, said Sir James, what are the best methods of preparing and of administering the vaccine; what is the dose necessary to afford protection; how long the protection will last; and whether the results obtained with monkeys are also true of man.

It was stated that Mr. Alan Sterling Parkes, D.Sc., and Miss Honor Bridget Fell had been promoted from Fourth Year Fellowships to Senior Fellowships. The following appointments to Junior Fellowships are announced for research into the subjects indicated:—Juda Hirsch Quastel, D.Sc. Lond., Fellow of Trinity College, Cambridge: extension of work on the chemistry of bacteria and of complement fixation. Percival Walter Clutterbuck, Ph.D. Manch., F.I.C., assistant lecturer in chemical physiology in the University of Birmingham: nature and function of the succinoxydase system of muscle and investigation of the enzymic systems concerned in carbohydrate metabolism. Bryan Harold Cabot Matthews, B.A. Camb., at present demonstrating in physiology at the University of Cambridge: conduction in sensory nerve-fibres, and the characteristics of sensory end-organs. Douglas Roy McCullagh, M.Sc. Manitoba, at present working at the Sir W. Dunn Institute of Biochemistry, Cambridge: studies in carbohydrate metabolism. Wallace Russell Aykroyd, M.D. Dub., now doing research in the School of Physiology, Trinity College, Dublin: an inquiry, at the Lister Institute, London, and in Newfoundland, into deficiency diseases and their relation to diet.

Correspondence concerning the Fund should be addressed to the hon. secretary at 35, Clarges-street, London, W.

"RE-ENDOWMENT" OF GUY'S HOSPITAL.—The treasurer's annual report states that "the time has come for the re-endowment" of the hospital, the adverse balance of income and expenditure having steadily accumulated, till it now exceeds £100,000. "The great success of the hospital during two centuries has very largely sprung from the freedom from financial anxieties of her administrators," and the governors feel that the position must be faced. Re-endowment, it is pointed out, involves the provision of half a million of money, which "constitutes a very serious call to the wealthy." Meanwhile it is recorded that the reconstruction of certain wards has been completed, and that 10 per cent. has been added to the accommodation. Last year 10,795 patients passed through the wards, which caused an appreciable reduction in the waiting list. The average stay of each patient, both medical and surgical, was reduced by rather more than a day. Out-patients made the enormous total of 537,676 attendances, at a cost of 1*s.* 7¼*d.* per attendance. The provision of the new out-patient department is being delayed by difficulties in clearing the site for the extension.

Medical Diary.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham.

MONDAY, July 23rd.—2.30 to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.

TUESDAY.—2.30 to 5 P.M., Medical, Surgical, Throat, Nose and Ear Clinics. Operations.

WEDNESDAY.—2.30 to 5 P.M., Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M., Dental Clinics. 2.30 to 5 P.M., Medical, Surgical, and Ear, Nose and Throat Clinics. Operations.

FRIDAY.—10.30 A.M., Throat, Nose and Ear Clinics. 2.30 to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.

MONDAY, July 23rd.—10 A.M., Dr. Dowling: Skin Department. 11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Mr. Simmonds: Surgical Out-patients.

TUESDAY.—10 A.M., Medical Registrar: Medical Wards. 2 P.M., Mr. Addison: Operations. 2 P.M., Dr. Shaw: Medical Out-patients.

WEDNESDAY.—10 A.M., Dr. Burnford: Medical Wards. 10 A.M., Dr. Owen: Medical Diseases of Children. 2 P.M., Dr. Scott Pinchin: Medical Out-patients.

THURSDAY.—10 A.M., Dr. Granger Stewart: Neurological Department. 2 P.M., Mr. Donald Armour: Operations. 2 P.M., Mr. MacDonald: Genito-Urinary Department.

FRIDAY.—10 A.M., Dr. Pritchard: Medical Wards. 12 noon, Dr. Ironside: Clinical Demonstration. 2 P.M., Mr. Sinclair: Surgical Out-patients.

SATURDAY.—9 A.M., Mr. Vlasto: Throat, Nose and Ear Operations. 10 A.M., Dr. Burnford: Bacterial Therapy Department. 10 A.M., Dr. Owen: Medical Diseases of Children.

Daily 10 A.M., to 5 P.M., Saturdays 10 A.M., to 1 P.M., Medical, Surgical and Special Departments. Operations, Anæsthetic Course, &c.

ST. PAUL'S HOSPITAL, Endell-street, W.C.

The Lecture arranged to be given by Sir Thomas Carey Evans on July 26th, has been indefinitely postponed owing to his unavoidable absence from London.

Appointments.

GOUGH, J. H. Harley, L.R.C.P. Lond., M.R.C.S., has been appointed Honorary Assistant Surgeon to the Ear, Nose and Throat Department of the Royal West Sussex Hospital, Chichester.

MURPHY, D., M.B., B.Ch. N.U.I., Medical Examiner of Emigrants, Canadian Government.

SHARP, C. G. K., M.D., Ch.B. Leeds, School Oculist, West Riding.

THOMPSON, J. A., M.B., Ch.B. Edin., Medical Inspector, West Riding Schools.

WHITE, C. F., M.B., Ch.B., D.P.H., Medical Officer of Health for the Port of London.

Vacancies.

For further information refer to the advertisement columns.

Bangor, Carnarvonshire and Anglesey Infirmary.—H.S. £200.

Bath, Royal United Hospital.—Asst. H.S. £100.

Birmingham, Birmingham and Midland Ear and Throat Hospital. 2nd H.S. At rate of £150.

Birmingham, Children's Hospital.—Res. M.O. £175. Also Cas. O. £250.

Birmingham University.—Walter Myers Travelling Studentship. £300.

Blackburn County Borough.—Asst. Dentist. £475.

Bradford, Royal Eye and Ear Hospital.—Res. H.S. £120. Also H.S. £120.
Cambridge, Addenbrooke's Hospital.—H.P. At rate of £130.
Chesterfield, Chesterfield and North Derbyshire Royal Hospital.—Cas. H.S. At rate of £100.
Dublin, St. Vincent's Hospital.—Hon. Asst. Surgeon.
Evelina Hospital for Children, Southwark, S.E.—H.S. At rate of £120.
Exeter, Royal Devon and Exeter Hospital.—H.S. At rate of £130.
Exminster, Devon Mental Hospital.—Jun. Asst. M.O. £300.
Folkestone, Elham Union.—District M.O. Also Public Vaccinator. £55 and £14 respectively.
Hastings, Royal East Sussex Hospital.—Hon. Surgeon.
Hertford, Hertford County Hospital.—H.P. At rate of £150.
Ipswich, East Suffolk and Ipswich Hospital.—Cas. O. £150.
Liverpool, Liverpool and District Hospital, &c.—H.P.
Liverpool University.—Alfred Jones Chair of Tropical Medicine. £1000.
Liverpool, Walton Institution, Rice-lane.—Res. Asst. M.O. £200.
London Hospital Medical College, Mile End, E.—Assistantship in the Department of Physiology. £400.
Maidstone, Kent County Mental Hospital.—Med. Supt. £1000.
Maidstone, Kent County Ophthalmic and Aural Hospital.—Aural H.S. At rate of £200.
Mexborough, Montagu Hospital.—Hon. Supervisory Radiologist.
Newcastle-on-Tyne, Royal Victoria Infirmary.—Res. M.O. £250. Also Surgical Reg. At rate of £100.
Northampton, County Borough.—Asst. M.O. £600.
Norwich, Norfolk and Norwich Hospital.—H.S. £120.
Nottingham General Hospital.—Res. Cas. O. At rate of £200.
Oldham, County Borough.—Asst. Schools M.O. £600.
Preston and County of Lancaster Royal Infirmary.—H.P. and H.S. £190 and £150 respectively.
Queen's Hospital for Children, Hackney-road, E.—Cas. O. At rate of £100.
Richmond, Surrey, Royal Hospital.—Hon. Asst. Radiologist, also Jun. H.S. £100.
Rotherham, Rotherham Hospital.—H.P. £180.
St. Mary's Hospital for Women and Children, Plaistow, E.—Res. M.O. At rate of £175.
Scarborough, Scarborough Hospital and Dispensary.—Two H.S.'s. Each at rate of £126.
Shrewsbury, Royal Salop Infirmary.—H.S. At rate of £160.
Society of Apothecaries of London.—Examiner in Midwifery.
Staffordshire, Lechfield County Laboratory.—Bacteriologist. 10 gns. per week.
Taunton, Taunton and Somerset Hospital.—Sen. House M.O. £150.
Woolwich and District War Memorial Hospital, Shooters' Hill, S.E.—Sen. H.S., also H.P. Each at £125.
Worcester County and City Mental Hospital, Powick, near Worcester.—Jun. Asst. M.O. £300.

The Chief Inspector of Factories announces a vacancy for a Certifying Factory Surgeon at Linlithgow (West Lothian).

A vacancy for a Medical Referee under the Workmen's Compensation Act, for the district of the Clerkenwell County Court (Circuit No. 41) is announced. Applications from Physicians should reach the Private Secretary, Home Office, Whitehall, S.W.1., not later than August 9th.

Births, Marriages, and Deaths.

BIRTHS.

DUNN.—On July 10th, at Red House, South Farnborough, the wife of Dr. G. Hunter Dunn, of a son.
GRIFFITH.—On July 13th, at Paradise House, Cambridge, the wife of A. Stanley Griffith, M.D., of a son.

MARRIAGES.

HORSFALL—ADAMS.—On July 7th, at the Church of St. Mary the Virgin, Ewell, Thomas Miles Moss Horsfall, M.D., to Phyllis Mary, only daughter of the late Mr. Herbert E. Adams and Mrs. Adams, of Hendford, Ewell, Surrey.

DEATHS.

KAY.—On July 9th, at Lymington, Bt.-Colonel A. G. Kay, R.A.M.C. (retired), aged 74.
KERR.—On July 13th, at 70, Scarisbrick New-road, Southport, Nettie Russell Donald, wife of Dr. James R. Kerr.
NEWBY.—On July 7th at Broad Park-avenue, Ilfracombe, Charles Henry Newby, F.R.C.S. Eng., aged 78.
STAPLES.—On July 11th, at St. Trinian, Walpole-gardens, Strawberry-hill, peacefully in his sleep, Lieut.-Colonel Francis Patrick Staples, R.A.M.C., (retired).
WHITEHEAD.—On July 11th, in London, after an operation, Col. J. H. Whitehead, D.S.O., M.R.C.S., L.R.C.P., of Plains, Natal, S. Africa, aged 58.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

INDEX TO "THE LANCET," VOL. I., 1928.

THE Index and Title-page to Vol. I., 1928, which was completed with the issue of June 30th, is now in preparation. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

Notes, Comments, and Abstracts.

THE NATIONAL INSTITUTE FOR THE DEAF.

THE fourth annual meeting of the National Institute for the Deaf was held at the Central Hall, Westminster, on July 17th, when the President, Lord Charnwood, was in the chair. Before the actual business of the meeting commenced, the Chairman voiced the unanimous feelings of those present by expressing the deepest sympathy with the Secretary, Mr. A. J. Story, in his recent bereavement, the sudden death of his wife.

In moving the adoption of the report of the committee, for the year ending March 31st last, Lord Charnwood emphasised the fact that an appreciable number of deaf people would be greatly benefited if facilities for a higher standard of education were provided for them, while the community would also gain. He pointed to the danger that children who were deaf might be classed among the mentally defective, owing to lack of insufficient arrangements on the part of State authorities, and some institution of national scope, he said, was needed to help the deaf after the education period. He referred to his recent effort in the House of Lords, with the support of the Duke of Montrose and the Archbishop of Canterbury, to induce the Government to set up some body to consider the whole question of the education of the deaf, and of their future employment for the good of the community. He hoped for better results in future efforts along this line, and expressed his gratitude to THE LANCET for the way in which it had supported the cause of the deaf.

Mr. Walter G. Yates, the hon. treasurer, then submitted the financial statement for the year ending March 31st, the main feature of which, he said, was that much of the money that had been obtained by special appeal had been used to make up deficiencies, and he pleaded for further donations, as the ordinary income was insufficient to meet expenses. Much propaganda work had to be done, and the results obtained by their small staff were really phenomenal.

Mr. M. Birley, Chairman of the Executive Committee, seconded the adoption of the report and of the financial statement, and the necessary motion was carried unanimously.

The Duke of Montrose said that in the name of social legislation the Government practically fed, clothed, educated, and nursed a large proportion of the people of the country. Something like one person in 30, he understood, was in receipt of State alimony of some kind in the name of social welfare, and he thought the time had arrived when something more should be done for the deaf. The only department of the Government which seemed to be concerned with the deaf was the Board of Education, and they were only interested in the education of children up to 16, or, in some cases, 18 years. It was 40 years since any Government Department had made an inquiry into the position of the deaf, and it was time that there should be an examination as to their welfare. Referring to the debate on Lord Charnwood's motion in the House of Lords for a Departmental inquiry, he stigmatised the proceedings as discreditable to the House, while he advocated the formation of vocational centres for the deaf and the encouragement of craft-work in order that as many deaf subjects as possible—and he thought the number would be very large—might become self-supporting. He moved:—

"That having regard to the grave social and industrial hardships caused by deafness in the lives of large numbers of adolescent and adult persons who were born deaf or have become so, and to the fact that no official inquiry into the results (in the terms of improved social and industrial well-being) of large public expenditures in their education has ever been held, this meeting is strongly of opinion that the time has arrived when a complete investigation into the conditions and needs of these deaf and dumb and deafened persons should be made.

"And, further, that this meeting urgently calls upon the Government to make such an investigation by means of a Departmental Committee, or otherwise, at an early date."

Colonel F. E. Fremantle, M.P., who seconded the motion, said that something like one-third of the adult population of the country had some difficulty of hearing, so that, apart from the cases with which the National Institute dealt, there was a huge number of people who should be personally sympathetic, and consequently be a potential source of help to the Institute. He quoted statistics which suggested the enormous loss to the country in personnel which defects of hearing caused, and thought that from the economical point of view the country might be losing as much as two million pounds a year through neglecting to employ the deaf suitably. He cited also figures contained in a contribution to THE LANCET by Squadron-Leader David Ranken dealing with the physical examination of airmen, and showing that of the total percentage of rejected recruits from the Air Service for all reasons it might be estimated that aural

disease affected 2·8 per cent. of that part of the population likely to present themselves for enrolment. From figures supplied from one particular London school for deaf boys between the years 1902 and 1928, and dealing with 737 boys who had left, he said that 89 per cent. of these were in employment and following a trade which they had learned at school, showing the high degree of efficiency which could follow training. It was obvious that the country ought to go ahead in that direction, and he was glad that the Institute was attempting to take the matter up on a national scale, and obtain the hearing of the Government.

Sir Squire Sprigge moved :—

"That the best thanks of the meeting be given to the President, the Executive Committee, the hon. Treasurer, hon. Solicitors, hon. Auditors, and to Mr. C. M. R. Balbi, A.M.I.E.E., hon. consulting electrical expert, for their services during the year, and that all these gentlemen be requested to act in their several capacities during the ensuing year."

The motion was carried unanimously and the meeting terminated with a cordial vote of thanks to the chairman and speakers.

FACTORY GIRLS' COUNTRY HOLIDAY FUND.

To the Editor of THE LANCET.

SIR,—Will you once again give us the opportunity of drawing the attention of your readers to this Fund, which may well claim to render good service to our poorer sisters, and so to the whole community. The change wrought in these pale Londoners in a few days is almost incredible, save to the eye-witness. Good food and plenty of it, rest on the beach or in the fresh country fields, and above all, freedom from care—knowing their holiday is paid for before they go—work wonders. There are now hundreds of girls hoping to be sent away during the next few weeks. Fresh applications come in daily, but we have not enough funds to send half the number at present. Many of the applicants have been saving out of their earnings week by week since the beginning of the year, towards their share of the cost of their holiday. Are they to be denied this pittance of a holiday, looked upon by most as a bare necessity? Are they, who for at least 50 weeks of the year have to go to their long and monotonous day's work in all weathers, to be denied health-giving air and surroundings during the other few days? Could your generous readers see, but for a moment, that long procession of hard-working and, alas! often worn, and pale girls coming to pay their savings week by week, for months before their holiday, they could surely not deny them the balance which would make it a certainty. This Fund helps chiefly the poorest class of factory workers, most of them are the main support, too, of their families. Subscriptions and donations will be thankfully received and acknowledged by the hon. treasurer, Mrs. Slater, or Miss Canney, 75, Lamb's Conduit-street, London, W.C. 1.

We are, Sir, yours faithfully,

(Signed) ALBERTA SANDWICH, A. F. LONDON,
MARY SCHARLIEB, J. F. GREEN,
LILIAN BRAITHWAITE, Chairman.

July 16th, 1928.

HEALTH INSTRUCTION FOR MISSIONARIES.

THE fourth edition of a pamphlet entitled "Health Instructions for Missionaries in the Tropics," has been issued by the Association of Medical Officers of Missionary Societies (1, Farnley-road, London, E. 4), price 4*d*. Various additions, including illustrations of some of the disease-carrying insects, have been made since the last edition was published in 1922 and the whole text has been revised. The booklet is intended for study before going abroad, and for reference when in the tropics.

THE ALMONER'S WORK AT AN EYE HOSPITAL.

A SHORT report by the Lady Almoner of Moorfields[1] gives a vivid picture of the routine work in her department. Children with phlyctenular keratitis, blepharitis, or interstitial keratitis who fail to respond to the surgeon's treatment are often found to be living in unhygienic conditions. A prolonged convalescence in a suitable institution often does far more to help them than continued attendance at the hospital. A child may be sent to Mayfield Ophthalmic Convalescent Home where there is skilled ophthalmic nursing, or to Swanley Ophthalmia Schools; in other cases the visits of a district nurse at the home may be effective. Extra food may be required, when the coöperation of a charitable society, such as the Invalid Children's Aid Association, may be applied for. Children suffering from interstitial keratitis may have to be transferred for treatment at one of the V.D. centres. For cases of progressive myopia, the surgeon may recommend either a myope school or "easy treatment" at school. Without the social service worker there would be nobody to see that this recommendation was carried out. Another class of case that needs the help of the social worker is that of the blind or partially blind, for whom surgical treatment can do no more. Even infants under 5 may benefit by a sojourn at a "sunshine home" whence they return not quite so helpless as before. There are schools for the blind for older children, workshops for adults, and pensions for those over 50, and in all these cases the almoner's business is to put the patient in touch with the appropriate voluntary association or Government department. Her work is an essential supplement to that of the surgeon.

[1] Royal London Ophthalmic Hospital (Moorfields Eye Hospital), Report of the Samaritan Fund and the Work done in the Social Service Department for the Year, 1927.

PSYCHIATRY IN INDIA.

THE European Mental Hospital at Ranchi has issued a report on its progress from 1924–1926. The number of patients admitted and discharged during the triennium was 199 and 124 respectively, and the total mortality was 22; 16, 9, and 37 voluntary boarders were received in each of the three years. The admission of three mental defectives brought up the question of State care of these children, but the Government decided that it could not yet cope with so vast a problem. The medical superintendent, Lieut.-Colonel O. A. R. Berkeley-Hill, is doing his best to arrange a pioneer institution to take 20 children. The value of occupational therapy for mentally disordered patients is recognised at Ranchi, and special buildings are to be provided for this purpose. A games and sports department is actively at work, and a swimming and boating lake has been constructed by damming a valley in the neighbourhood. A golfer-patient has discovered and laid out a nine-hole course. After-care of discharged patients is a difficult problem in India, but Toc H and the League of Women Workers have rendered invaluable service of this kind in Calcutta. Investigations into the production of aseptic meningitis by injection of horse serum have been carried out with the aid of the dhobi's pony, and will be reported on next year.

We wish Lieut.-Colonel Berkeley-Hill every success in his exacting task.

"MANSON HOUSE."

THE suggestion that Manson House should be the name of the new headquarters of the Royal Society of Tropical Medicine and Hygiene has already given rise to confusion, as the word may be mis-heard as "mansion house." Colonel Clayton Lane's plea that the building should be called "Patrick Manson House" is supported by the fact that we mis-printed "mansion" as "manson" in his last letter (THE LANCET, July 14th, p. 95), thus committing the two possible errors in consecutive issues of this journal. Whilst purists may regard their pronunciation of this inverted shibboleth as beyond criticism, it can evidently cause inconvenience even to those whose intentions are excellent.

CHILDREN AND THE SEASIDE HOLIDAY.

THE problem of the children is always an anxious one for parents, but never is this more so than during the month of August, when the schools are closed and everyone is holidaying. At Hastings the corporation has engaged a staff-sergeant whose duty during August will be to amuse the children on the sands with organised games, and at the same time to give them instruction in physical drill. The value of this excellent scheme is increased by the provision of a tent which will play the part of a creche.

CONFECTIONERY.

THE Chocolate and Confectionery Exhibition, held at Olympia last week, was not without medical interest. Wholesome chocolates and pure boiled sweets can be very useful, as well as popular, prescriptions at the proper time, while toffees and mints play their part respectively in the treatment of pharyngeal cough and minor digestive disorders. Chocolate is a very valuable vehicle for milk, and the bulk of Cadbury's "Dairy Milk" is manufactured in the summer when the milk-supply is ample and irradiated. For those who like a coffee flavour, Terry's new "Café au lait" chocolate can be recommended. De Villars specialise in plain chocolate flavoured with all sorts of surprising things—orange, raspberry, and currant, for instance. Fox's "Glacier Mints" and barley sugar are well known, but not everybody knows that this firm also markets a eucalyptus and menthol sweet for winter colds and throats. Van Houten's cocoa is a household word; their bitter chocolate is an excellent food-medium for those who do not like a sweetmeat. For wholesome assortments, the Dutch firms, such as Dioste and Rademaker, should not be forgotten. This was the first exhibition organised by the chocolate makers alone.